GEOPHYSICAL DATA FROM DRIFTING ICE STATIONS FRAM IV AND TRISTEN

by Werner Tiemann, Jay Ardai, Barry Allen, T.O. Manley, Yngve Kristoffersen and Kenneth Hunkins

TECHNICAL REPORT

LDGO-82-3

Department of the Navy
Office of Naval Research
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Abstract

This report contains satellite navigation positioning, precision depth recorder (PDR) measurements, ice floe azimuths and magnetic declinations collected by the Lamont Group at the FRAM IV drifting ice station. Gravity measurements at FRAM IV, taken by Yngve Kristoffersen of the Norsk Polarinstitutt, are incorporated into this report.

Satellite navigation positioning and PDR data from the drifting ice station TRISTEN are also included in this report.

Data are presented in the form of tables and figures with a brief description of the instrument and methods used in the obtaining and reducing the data prior to each section.

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The FRAM Drifting Station Program

The deep Arctic Ocean north of Greenland and Svalbard was first explored during the Norwegian North Polar Expedition with the ship Fram in 1893-6, under the leadership of Fridtjof Nansen. Although the region has been studied by Soviet scientists in the years since, there has been little exploration by other nations. The area is of special interest to geophysicists since it is crossed by the global mid-ocean ridge system and to oceanographers because the major exchange of water between the Arctic and Atlantic Oceans occurs through the Greenland-Spitsbergen Strait.

In order to improve scientific understanding of this region, a series of springtime expeditions based at drifting ice floe camps was inaugurated in 1979 with Fram I. An international group from the USA, Norway, Canada and Denmark conducted geophysical and oceanographic studies at that station. In the following year on Fram II, an acoustic program was conducted by U.S. scientists. The series continued in 1981 with Fram III, and concluded in 1982 with Fram IV, the subject of this report. In addition to the main camps, two satellite camps were established during the project; Camp I during Fram II and Tristen during Fram IV. Figure 1 shows the drift tracks of Fram I, II, III and IV in relation to the northeast coast of Greenland and bottom topography.

All of the Fram camps have relied on Twin Otter and Tri-turbo aircraft for establishment, movement of people, and supply of all items except fuel and explosives, which were dropped by parachute from U.S. Air Force C-130 aircraft. An essential part of each operation has been a Bell 204 helicopter and crew which have remained at the camp throughout its duration to provide scientific and logistic support.

The positions of the Fram IV camp and the ocean depths beneath it during its occupation are presented in this report.

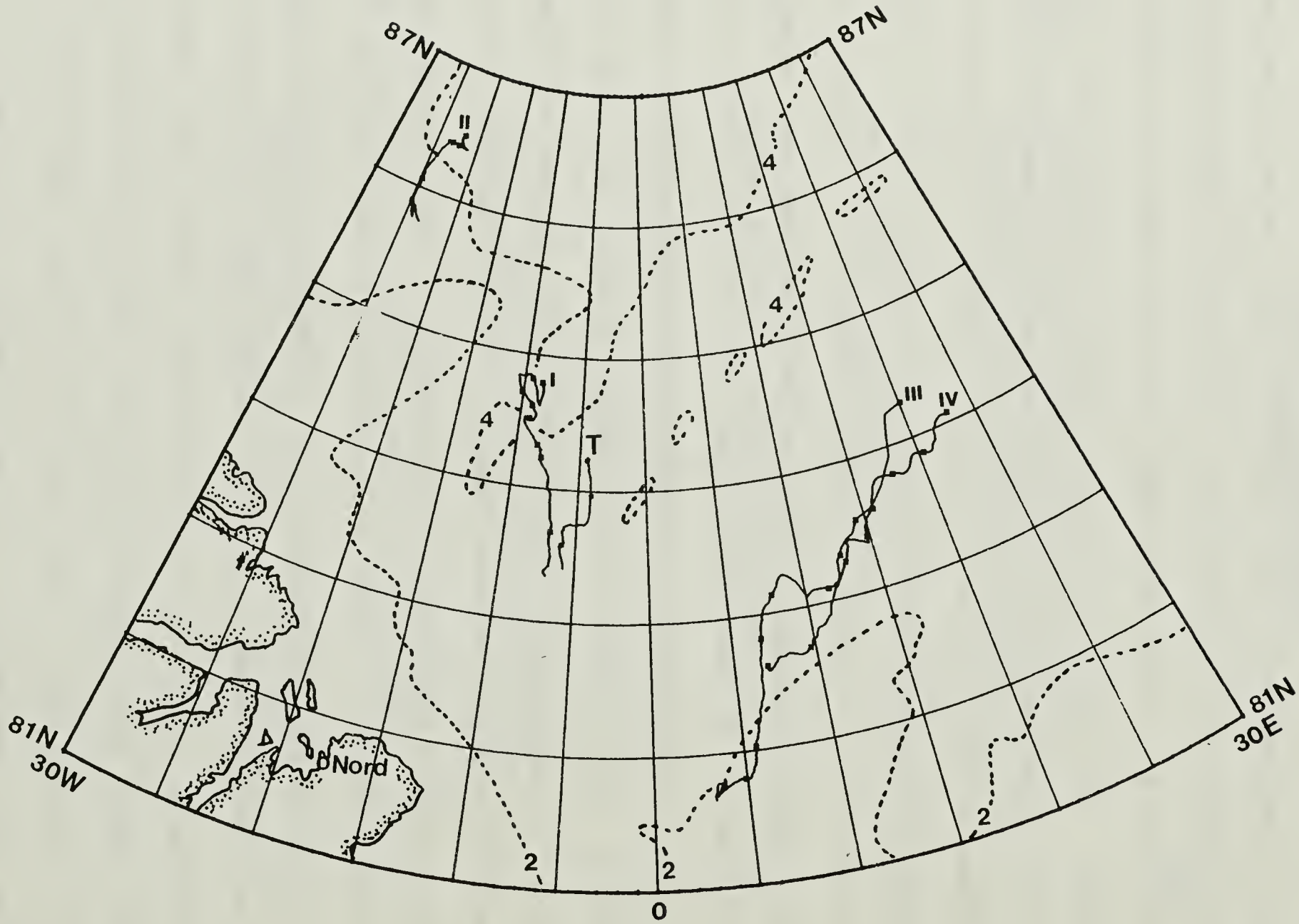

Figure 1 Drift track of FRAM I, II, III and IV and satellite camp TRISTEN shown in relation to the northeast coast of Greenland and the local bottom topography. The Roman numerals at the beginning of each track denote the station and "T" denotes TRISTEN. Bathymetry is in kilometers.

Navigation - FRAM IV

All positions at Fram IV were determined using the U.S. Navy Transit satellite navigation system. Transit satellites circle the earth in 107-minute polar orbits at an altitude of approximately 100 km. Each satellite continuously transmits position data as a function of time. By measuring the change in the Doppler frequency of the received signals as the satellite approaches, passes, and recedes, the position of the station relative to the satellite's path can be determined with great precision. The number of satellite passes at a given site over a given time will be greatest at the poles. In the Arctic the interval between fixes is therefore short.

A Magnavox MX1502 satellite navigation set, a rugged, portable, nearly automatic navigation system introduced in 1977, was used as the principal receiver on Fram IV. During the early construction phase of the camp, positions were taken with a Decca satellite navigation receiver. These early positions, from the 15th of March to the 23rd of March, are listed in Table 1. They are included in the drift track based upon original data (Figure 2), but not in the Kalman filtered track (Figure 3). The fixes and associated information from the 1502 were printed out automatically, in real time, on a teleprinter. These data were also stored on magnetic tape cassettes and later transferred to 9-track tape to facilitate processing.

Fixes calculated with the MX 1502 sets are based on the World Geodetic System-1972 coordinates. "Standard deviations" in latitude and longitude based on Doppler data residuals are calculated automatically by the 1502 for each fix. All fixes with "standard deviations" greater than 48 m in latitude and 55 m in longitude were eliminated from the data set. These cutoff values were arrived at by calculating the mean and standard deviation of the "standard deviations" for all recorded fixes. All fixes with "standard

deviations" greater than the mean plus one standard deviation were eliminated in two successive trials.

A Kalman filtering technique was used on the Fram IV navigation data set. The main purpose of the filter was to smooth the track and provide fixes at evenly-spaced time intervals of one hour. In addition, ice velocities were computed at the same evenly-spaced intervals. More detail on the Kalman filtering techniques for irregularly-spaced data sets is given in Thorndike and Manley (1980). Removal of oscillations in the ice motion with periods greater than that of the inertial period was estimated to be less than 5 per cent. No Kalman filtering was performed on the Decca fixes.

TABLE 1

POSITIONS OF FRAM IV (FROM DECCA RECEIVER)

DAY	MONTH	YEAR	GMT	LATITUDE (°N)	LONGITUDE (°E)
15	03	1982	1900	83 58.52	21 32.52
16	03	1982	1042	84 01.50	21 33.90
17	03	1982	0700	87 05.80	21 42.40
18	03	1982	0825	84 08.30	22 37.00
19	03	1982	0650	84 05.80	22 44.80
20	03	1982	0740	84 10.40	22 49.40
21	03	1982	0658	84 06.80	23 15.50
22	03	1982	0534	84 06.70	23 15.30
23	03	1982	0628	84 04.30	23 07.30

Note: On June 25, 1982, an ARGOS Buoy left behind on the Fram IV floe gave a position of 79.29° N and 00.21° W.

The above positions were provided by Al Hielscher of the Polar Science Center in Seattle, Washington, who was camp manager of Fram IV.

Figure 2 Drift track of FRAM IV based upon satellite navigation fixes. Fixes taken with a Decca receiver are numbered by date in March, 1982. Fixes taken with a Magnavox receiver are undated.

FILTERED ORIGINAL POSITIONS OF FRAM IV

DETERMINED BY SATELLITE NAVIGATION

Key to Column Headings:

SN	Serial number of satellite receiver unit
DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
LATITUDE	North latitude in decimal degrees
LONGITUDE	Longitude in decimal degrees, (negative implies west longitude)
EL	Maximum elevation of satellite above horizon in degrees
I	Number of iterations in the computation
DP	Number of 23/28 - second Doppler counts
SAT	Last three digits of satellite identification number
STDY	Standard deviation of latitude in meters
STDX	Standard deviation of longitude in meters

Note: The Decca receiver does not record satellite parameters other than latitude and longitude.

TABLE - 2

FRAM 4 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	23	MAR	1982	1255	84.066422	23.127388	56	3	28	200	46.0	24.0
30	23	MAR	1982	1440	84.065643	23.111141	55	3	35	200	40.0	19.0
30	23	MAR	1982	1523	84.066635	23.112003	62	3	31	480	34.0	35.0
30	23	MAR	1982	1624	84.066101	23.098389	60	2	34	200	33.0	25.0
30	23	MAR	1982	1713	84.067078	23.092976	56	2	35	480	46.0	25.0
30	23	MAR	1982	1809	84.066544	23.069901	71	2	31	200	32.0	53.0
30	23	MAR	1982	2140	84.067581	23.046082	74	2	32	200	21.0	42.0
30	23	MAR	1982	2326	84.067810	23.015446	61	3	34	200	28.0	24.0
30	24	MAR	1982	112	84.067657	22.995319	55	2	28	200	44.0	33.0
30	24	MAR	1982	259	84.068146	22.965702	55	2	36	200	29.0	17.0
30	24	MAR	1982	408	84.067596	22.947029	59	3	30	480	46.0	27.0
30	24	MAR	1982	445	84.068909	22.929169	61	2	35	200	40.0	35.0
30	24	MAR	1982	557	84.067780	22.897659	55	3	31	480	48.0	23.0
30	24	MAR	1982	745	84.068527	22.840176	59	3	36	480	42.0	26.0
30	24	MAR	1982	1147	84.069717	22.736271	60	3	35	200	37.0	27.0
30	24	MAR	1982	1332	84.069412	22.674175	55	3	35	200	48.0	22.0
30	24	MAR	1982	1500	84.071533	22.621349	65	3	36	480	36.0	37.0
30	24	MAR	1982	1516	84.069641	22.609730	56	3	29	200	34.0	22.0
30	24	MAR	1982	1650	84.072495	22.552441	57	3	38	480	43.0	25.0
30	24	MAR	1982	1840	84.072662	22.477501	56	2	36	480	37.0	20.0
30	24	MAR	1982	2030	84.070724	22.406559	62	3	34	480	38.0	30.0
30	25	MAR	1982	150	84.061981	22.210667	54	3	18	200	48.0	44.0
30	25	MAR	1982	910	84.047256	22.028919	66	2	36	480	48.0	52.0
30	25	MAR	1982	1039	84.045715	22.017277	66	3	29	200	41.0	51.0
30	25	MAR	1982	1149	84.044434	21.985268	57	3	33	140	25.0	24.0
30	25	MAR	1982	1224	84.043533	21.982147	57	3	33	200	46.0	27.0
30	25	MAR	1982	1335	84.042816	21.965538	50	3	24	140	36.0	23.0
30	25	MAR	1982	1437	84.042221	21.949326	67	3	38	480	38.0	44.0
30	25	MAR	1982	1521	84.040939	21.945187	50	3	33	140	32.0	18.0
30	25	MAR	1982	1553	84.040009	21.944061	58	3	28	200	48.0	38.0
30	25	MAR	1982	1707	84.039063	21.928497	55	2	26	140	26.0	22.0
30	25	MAR	1982	1817	84.038193	21.918663	56	3	37	480	44.0	24.0
30	25	MAR	1982	1853	84.036911	21.910347	67	3	31	140	26.0	45.0
30	25	MAR	1982	2007	84.035294	21.888332	60	3	37	480	40.0	29.0
30	25	MAR	1982	2255	84.031830	21.849312	64	3	33	200	28.0	29.0
30	26	MAR	1982	14	84.029968	21.842262	63	3	31	140	30.0	25.0
30	26	MAR	1982	41	84.028961	21.838737	56	2	34	200	38.0	24.0
30	26	MAR	1982	201	84.026825	21.834999	57	3	23	140	35.0	22.0
30	26	MAR	1982	227	84.025436	21.829983	54	3	36	200	33.0	19.0
30	26	MAR	1982	323	84.022583	21.835125	62	3	36	480	44.0	36.0
30	26	MAR	1982	349	84.022293	21.830658	58	3	34	140	25.0	14.0
30	26	MAR	1982	414	84.020630	21.826561	59	3	32	200	38.0	32.0
30	26	MAR	1982	511	84.018051	21.826496	56	3	35	480	48.0	24.0
30	26	MAR	1982	536	84.017349	21.823963	66	3	27	140	34.0	29.0
30	26	MAR	1982	600	84.016190	21.818214	70	3	34	200	32.0	47.0
30	26	MAR	1982	659	84.014145	21.818638	56	3	35	480	48.0	26.0
30	26	MAR	1982	848	84.010605	21.805099	63	3	35	480	48.0	43.0
30	26	MAR	1982	1243	84.008514	21.755836	52	3	22	140	40.0	34.0
30	26	MAR	1982	1414	84.007034	21.753487	69	3	38	480	26.0	36.0
30	26	MAR	1982	1604	84.003464	21.748074	59	3	38	480	38.0	27.0
30	26	MAR	1982	1630	84.002029	21.742340	61	3	21	200	44.0	36.0
30	26	MAR	1982	1754	84.000565	21.729832	55	3	34	480	35.0	19.0
30	26	MAR	1982	1944	83.999832	21.690968	59	3	37	480	38.0	26.0
30	26	MAR	1982	2133	84.001633	21.653053	68	3	37	480	39.0	53.0
30	27	MAR	1982	500	83.988754	21.571156	61	3	20	130	38.0	47.0
30	28	MAR	1982	237	83.897919	21.159115	65	3	36	480	44.0	47.0
30	28	MAR	1982	342	83.895187	21.138561	56	3	31	200	43.0	27.0
30	28	MAR	1982	614	83.886703	21.120712	55	3	34	480	40.0	18.0
30	28	MAR	1982	1244	83.867554	21.022636	51	3	19	140	42.0	30.0
30	28	MAR	1982	1302	83.867676	21.011715	57	4	29	190	47.0	37.0
30	28	MAR	1982	1430	83.863373	20.992401	48	3	32	140	27.0	15.0
30	28	MAR	1982	1559	83.859940	20.973831	58	3	34	200	40.0	29.0
30	28	MAR	1982	1616	83.859665	20.974327	51	3	32	140	29.0	20.0
30	28	MAR	1982	1708	83.858307	20.959167	55	3	38	480	29.0	16.0
30	28	MAR	1982	1802	83.856323	20.953522	61	3	34	140	24.0	29.0
30	28	MAR	1982	1858	83.854660	20.934814	56	3	38	480	42.0	25.0
30	28	MAR	1982	2047	83.851730	20.901249	63	3	38	480	39.0	38.0
30	28	MAR	1982	2300	83.850143	20.847385	62	3	32	200	33.0	28.0

FRAM 4 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	29	MAR	1982	47	83.850281	20.806553	54	3	28	200	44.0	28.0
30	29	MAR	1982	110	83.849686	20.795975	57	3	26	140	42.0	25.0
30	29	MAR	1982	233	83.848953	20.782917	53	3	35	200	30.0	17.0
30	29	MAR	1982	258	83.848938	20.772739	56	3	26	140	35.0	19.0
30	29	MAR	1982	403	83.847519	20.754440	58	3	37	480	44.0	27.0
30	29	MAR	1982	551	83.847549	20.719475	54	3	37	480	47.0	22.0
30	29	MAR	1982	606	83.848328	20.725517	71	3	24	200	39.0	55.0
30	29	MAR	1982	739	83.848022	20.677856	58	4	28	480	47.0	36.0
30	29	MAR	1982	836	83.850082	20.653454	59	3	24	190	47.0	45.0
30	29	MAR	1982	928	83.849503	20.622917	68	3	38	480	43.0	55.0
30	29	MAR	1982	1152	83.854126	20.556881	55	3	28	140	38.0	29.0
30	29	MAR	1982	1212	83.855316	20.558907	55	3	35	190	42.0	24.0
30	29	MAR	1982	1455	83.858246	20.485218	63	5	23	480	47.0	39.0
30	29	MAR	1982	1524	83.858170	20.471581	49	3	27	140	40.0	24.0
30	29	MAR	1982	1636	83.860504	20.454159	61	3	26	200	44.0	35.0
30	29	MAR	1982	1710	83.861267	20.444309	56	3	31	140	34.0	29.0
30	29	MAR	1982	2024	83.867554	20.398525	62	3	35	480	37.0	31.0
30	29	MAR	1982	2024	83.867554	20.398525	62	3	35	480	37.0	31.0
30	29	MAR	1982	2107	83.867157	20.379158	59	3	28	190	43.0	25.0
30	29	MAR	1982	2152	83.868454	20.358532	70	3	31	200	31.0	43.0
30	29	MAR	1982	2338	83.869705	20.320351	58	3	34	200	38.0	28.0
30	30	MAR	1982	17	83.870438	20.308018	61	3	21	140	42.0	39.0
30	30	MAR	1982	310	83.871613	20.255783	54	3	33	200	34.0	21.0
30	30	MAR	1982	528	83.871704	20.227867	55	3	34	480	48.0	23.0
30	30	MAR	1982	716	83.872131	20.199944	57	3	37	480	37.0	21.0
30	30	MAR	1982	905	83.872452	20.164688	66	3	37	480	44.0	49.0
30	30	MAR	1982	1310	83.876907	20.088024	58	3	35	190	37.0	26.0
30	30	MAR	1982	1343	83.876114	20.073261	53	3	31	200	45.0	19.0
30	30	MAR	1982	1432	83.877396	20.057480	65	3	37	480	31.0	33.0
30	30	MAR	1982	1457	83.878021	20.058498	69	3	29	190	43.0	55.0
30	30	MAR	1982	1804	83.878021	20.023994	62	3	17	140	46.0	55.0
30	30	MAR	1982	2324	83.878143	19.955139	66	2	29	140	32.0	33.0
30	31	MAR	1982	15	83.878006	19.945168	55	2	34	200	42.0	28.0
30	31	MAR	1982	112	83.878250	19.931046	57	2	30	140	30.0	19.0
30	31	MAR	1982	259	83.878693	19.905945	56	2	34	140	34.0	18.0
30	31	MAR	1982	317	83.877975	19.902500	60	3	37	480	43.0	35.0
30	31	MAR	1982	348	83.878830	19.894226	56	3	33	200	31.0	24.0
30	31	MAR	1982	506	83.877731	19.884865	55	3	35	480	45.0	22.0
30	31	MAR	1982	534	83.878693	19.881767	67	2	29	200	44.0	55.0
30	31	MAR	1982	634	83.877960	19.878551	76	3	25	140	39.0	55.0
30	31	MAR	1982	842	83.877274	19.857132	63	3	36	480	45.0	43.0
30	31	MAR	1982	1050	83.877487	19.825981	62	3	34	200	48.0	45.0
30	31	MAR	1982	1154	83.878906	19.797558	55	2	33	140	30.0	25.0
30	31	MAR	1982	1340	83.880829	19.757092	49	3	25	140	38.0	20.0
30	31	MAR	1982	1409	83.881668	19.741436	68	3	38	480	36.0	47.0
30	31	MAR	1982	1526	83.881775	19.713120	50	2	31	140	29.0	17.0
30	31	MAR	1982	1712	83.881622	19.682499	56	2	32	140	30.0	29.0
30	31	MAR	1982	2231	83.880081	19.571716	72	3	17	140	34.0	44.0
30	1	APR	1982	19	83.879425	19.536293	60	3	20	140	38.0	30.0
30	1	APR	1982	206	83.878342	19.501743	56	3	31	140	33.0	21.0
30	1	APR	1982	354	83.876617	19.472980	58	3	24	140	38.0	26.0
30	1	APR	1982	443	83.874603	19.460419	56	3	36	480	47.0	25.0
30	1	APR	1982	541	83.874466	19.450539	69	3	25	140	36.0	48.0
30	1	APR	1982	819	83.871429	19.416508	61	3	31	480	43.0	38.0
30	1	APR	1982	1101	83.868469	19.388760	60	3	28	140	39.0	41.0
30	1	APR	1982	1433	83.865128	19.339806	49	3	21	140	42.0	30.0
30	1	APR	1982	1536	83.864304	19.337387	59	2	35	480	37.0	29.0
30	1	APR	1982	1619	83.863083	19.330299	52	3	29	140	36.0	29.0
30	1	APR	1982	1641	83.862381	19.329243	62	3	33	200	42.0	38.0
30	1	APR	1982	1725	83.861649	19.324474	55	3	37	480	38.0	21.0
30	1	APR	1982	1805	83.860794	19.323845	63	3	31	140	25.0	35.0
30	1	APR	1982	1841	83.859940	19.317623	51	3	19	130	39.0	26.0
30	1	APR	1982	1915	83.858795	19.313114	57	3	38	480	38.0	25.0
30	1	APR	1982	2105	83.856308	19.304111	66	3	36	480	38.0	46.0
30	1	APR	1982	2158	83.855743	19.291534	67	3	32	200	30.0	43.0
30	1	APR	1982	2326	83.854156	19.282993	65	3	24	140	36.0	36.0
30	2	APR	1982	301	83.849442	19.252460	56	3	26	140	35.0	18.0
30	2	APR	1982	316	83.849350	19.250492	54	3	28	200	46.0	28.0

FRAM 4 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	2	APR	1982	420	83.847595	19.244869	56	3	36	480	36.0	21.0
30	2	APR	1982	448	83.847534	19.242577	63	3	32	140	29.0	24.0
30	2	APR	1982	704	83.845230	19.227123	68	3	29	190	36.0	52.0
30	2	APR	1982	852	83.842896	19.218933	58	3	20	190	40.0	38.0
30	2	APR	1982	1009	83.840988	19.215221	66	3	29	140	26.0	40.0
30	2	APR	1982	1039	83.840424	19.209766	54	3	26	190	47.0	22.0
30	2	APR	1982	1155	83.838867	19.201633	54	3	33	140	28.0	23.0
30	2	APR	1982	1341	83.836868	19.188148	49	3	29	140	34.0	19.0
30	2	APR	1982	1415	83.836258	19.181778	65	3	35	190	31.0	37.0
30	2	APR	1982	1512	83.835266	19.172497	61	3	36	480	38.0	33.0
30	2	APR	1982	1527	83.834656	19.171993	50	3	21	140	34.0	25.0
30	2	APR	1982	1702	83.832291	19.164864	55	3	37	480	40.0	22.0
30	2	APR	1982	2042	83.826080	19.140480	64	3	37	480	36.0	37.0
30	2	APR	1982	2122	83.825317	19.142109	57	3	25	190	48.0	33.0
30	3	APR	1982	240	83.818253	19.104366	70	3	29	190	42.0	55.0
30	3	APR	1982	802	83.810043	19.041599	61	3	18	190	41.0	46.0
30	3	APR	1982	1325	83.801697	18.986645	60	4	23	190	44.0	52.0
30	3	APR	1982	1425	83.799225	18.973877	53	3	33	200	46.0	24.0
30	3	APR	1982	1449	83.799423	18.958359	62	3	38	480	35.0	32.0
30	3	APR	1982	1610	83.796814	18.939484	59	3	35	200	44.0	36.0
30	3	APR	1982	1639	83.796585	18.928875	55	3	37	480	38.0	22.0
30	3	APR	1982	1829	83.793182	18.901928	55	3	37	480	43.0	25.0
30	3	APR	1982	2019	83.789612	18.871410	62	3	38	480	37.0	34.0
30	3	APR	1982	2034	83.789276	18.868877	52	3	26	130	36.0	26.0
30	3	APR	1982	2312	83.785858	18.830711	58	3	33	200	39.0	34.0
30	3	APR	1982	2327	83.785873	18.825733	63	3	24	140	31.0	39.0
30	4	APR	1982	58	83.783997	18.810547	52	4	34	200	37.0	22.0
30	4	APR	1982	115	83.783875	18.808525	56	3	26	140	35.0	22.0
30	4	APR	1982	244	83.782028	18.785980	53	3	33	200	42.0	27.0
30	4	APR	1982	302	83.782089	18.783253	56	3	31	140	37.0	20.0
30	4	APR	1982	431	83.780121	18.759060	60	3	35	200	42.0	40.0
30	4	APR	1982	450	83.780106	18.752975	63	3	35	140	29.0	25.0
30	4	APR	1982	523	83.778351	18.742023	54	3	36	480	41.0	20.0
30	4	APR	1982	711	83.777176	18.708607	57	3	34	480	41.0	24.0
30	4	APR	1982	859	83.776276	18.680466	66	3	38	480	40.0	47.0
30	4	APR	1982	1010	83.775421	18.671825	64	3	33	140	25.0	38.0
30	4	APR	1982	1157	83.774078	18.642826	53	3	28	140	27.0	20.0
30	4	APR	1982	1343	83.772552	18.618458	48	3	33	140	32.0	19.0
30	4	APR	1982	1426	83.773178	18.603924	64	3	38	480	37.0	39.0
30	4	APR	1982	1528	83.771454	18.585964	50	3	32	140	27.0	17.0
30	4	APR	1982	1647	83.770798	18.563442	63	3	34	200	42.0	46.0
30	4	APR	1982	1714	83.770660	18.557060	58	3	33	140	29.0	29.0
30	4	APR	1982	2203	83.769211	18.479954	65	3	27	200	41.0	49.0
30	5	APR	1982	22	83.768478	18.453148	59	3	32	140	27.0	18.0
30	5	APR	1982	210	83.768173	18.425957	55	3	29	140	33.0	16.0
30	5	APR	1982	312	83.766876	18.403557	59	3	34	480	43.0	31.0
30	5	APR	1982	357	83.768143	18.389748	59	3	29	140	36.0	24.0
30	5	APR	1982	500	83.767883	18.357342	54	3	32	480	34.0	16.0
30	5	APR	1982	544	83.770401	18.350605	70	3	32	140	35.0	40.0
30	5	APR	1982	648	83.769821	18.301273	56	3	36	480	42.0	23.0
30	5	APR	1982	809	83.774231	18.263302	60	3	24	190	39.0	36.0
30	5	APR	1982	957	83.778915	18.209427	54	3	16	190	48.0	37.0
30	5	APR	1982	1104	83.780792	18.179790	58	3	30	140	35.0	33.0
30	5	APR	1982	1144	83.783035	18.166855	55	4	28	190	28.0	19.0
30	5	APR	1982	1250	83.783615	18.131104	50	3	32	140	34.0	22.0
30	5	APR	1982	1436	83.786575	18.074211	49	3	31	140	28.0	16.0
30	5	APR	1982	1539	83.788055	18.034874	56	3	34	200	35.0	24.0
30	5	APR	1982	1553	83.790497	18.032776	57	3	27	480	43.0	35.0
30	5	APR	1982	1622	83.789261	18.009548	53	3	34	140	29.0	22.0
30	5	APR	1982	1743	83.793488	17.965374	54	3	37	480	42.0	23.0
30	5	APR	1982	1808	83.791916	17.934193	65	3	29	140	30.0	43.0
30	5	APR	1982	1933	83.795593	17.886532	59	3	37	480	34.0	25.0
30	5	APR	1982	2122	83.796356	17.816139	70	3	36	480	27.0	38.0
30	5	APR	1982	2240	83.796783	17.749283	61	3	34	200	42.0	41.0
30	5	APR	1982	2329	83.797516	17.718605	63	3	31	140	31.0	29.0
30	6	APR	1982	26	83.797180	17.692490	53	3	32	200	44.0	27.0
30	6	APR	1982	116	83.797089	17.666401	56	3	27	140	29.0	18.0
30	6	APR	1982	249	83.794113	17.626446	61	3	36	480	45.0	39.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	6	APR	1982	304	83.796951	17.611183	57	3	24	140	47.0	18.0
30	6	APR	1982	437	83.793869	17.545395	55	3	36	480	42.0	22.0
30	6	APR	1982	437	83.793869	17.545395	55	3	36	480	42.0	22.0
30	6	APR	1982	626	83.794128	17.449562	55	3	37	480	44.0	23.0
30	6	APR	1982	814	83.795227	17.351059	62	3	30	480	44.0	44.0
30	6	APR	1982	1340	83.801071	17.075397	69	3	37	480	37.0	52.0
30	6	APR	1982	1530	83.802826	16.973129	58	3	33	480	38.0	28.0
30	6	APR	1982	2236	83.803391	16.587162	69	3	22	140	42.0	47.0
30	6	APR	1982	2318	83.802643	16.566151	57	3	34	200	35.0	28.0
30	7	APR	1982	24	83.801727	16.535316	59	3	32	140	29.0	21.0
30	7	APR	1982	104	83.800797	16.516838	52	3	29	200	46.0	32.0
30	7	APR	1982	211	83.799484	16.489468	56	3	30	140	31.0	17.0
30	7	APR	1982	250	83.798233	16.471127	53	3	29	200	46.0	34.0
30	7	APR	1982	359	83.797119	16.444389	60	3	35	140	32.0	22.0
30	7	APR	1982	414	83.795013	16.438015	56	3	31	480	42.0	21.0
30	7	APR	1982	546	83.793655	16.387012	71	4	33	140	32.0	40.0
30	7	APR	1982	603	83.792435	16.373825	54	3	31	480	40.0	21.0
30	7	APR	1982	751	83.790695	16.324471	60	3	32	480	41.0	34.0
30	7	APR	1982	822	83.790604	16.310635	55	3	23	130	39.0	21.0
30	7	APR	1982	1106	83.783417	16.263355	58	3	31	140	32.0	29.0
30	7	APR	1982	1152	83.782394	16.246746	55	3	32	190	29.0	20.0
30	7	APR	1982	1252	83.779083	16.233273	50	3	31	140	36.0	21.0
30	7	APR	1982	1317	83.779205	16.214207	73	4	37	480	32.0	55.0
30	7	APR	1982	1340	83.777313	16.217770	62	3	31	190	36.0	37.0
30	7	APR	1982	1438	83.774246	16.205414	49	3	33	140	30.0	17.0
30	7	APR	1982	1507	83.773743	16.197300	60	3	31	480	37.0	32.0
30	7	APR	1982	1624	83.769424	16.179310	53	3	30	140	33.0	27.0
30	7	APR	1982	1810	83.765396	16.147545	65	4	33	140	27.0	41.0
30	7	APR	1982	2209	83.755798	16.058136	64	3	32	200	37.0	41.0
30	7	APR	1982	2331	83.752533	16.049095	63	4	32	140	30.0	28.0
30	7	APR	1982	2355	83.750778	16.051922	54	3	31	200	41.0	33.0
30	8	APR	1982	118	83.747269	16.041351	56	3	33	140	32.0	18.0
30	8	APR	1982	141	83.745834	16.037201	51	3	28	200	47.0	30.0
30	8	APR	1982	204	83.744019	16.043938	66	4	37	480	43.0	50.0
30	8	APR	1982	306	83.742401	16.026539	56	3	32	140	28.0	16.0
30	8	APR	1982	352	83.740143	16.026115	56	3	31	480	46.0	27.0
30	8	APR	1982	453	83.738525	16.016788	64	4	30	140	38.0	29.0
30	8	APR	1982	514	83.738083	16.017818	65	4	28	200	40.0	54.0
30	8	APR	1982	540	83.737061	16.011677	54	3	29	480	45.0	22.0
30	8	APR	1982	1014	83.726700	15.982590	63	4	28	140	37.0	44.0
30	8	APR	1982	1200	83.723068	15.970825	52	3	26	140	31.0	23.0
30	8	APR	1982	1346	83.718887	15.964552	48	3	31	140	31.0	18.0
30	8	APR	1982	1532	83.715927	15.959385	50	3	30	140	28.0	18.0
30	8	APR	1982	1718	83.713043	15.955215	59	4	31	140	27.0	27.0
30	8	APR	1982	1824	83.711395	15.943647	55	3	37	480	34.0	20.0
30	8	APR	1982	2013	83.708771	15.929813	62	3	37	480	39.0	35.0
30	8	APR	1982	2238	83.705627	15.908869	68	3	29	140	35.0	36.0
30	9	APR	1982	116	83.700958	15.913301	62	4	28	190	40.0	33.0
30	9	APR	1982	329	83.697128	15.902233	57	3	37	480	47.0	31.0
30	9	APR	1982	400	83.696960	15.900410	60	3	24	140	34.0	31.0
30	9	APR	1982	517	83.694946	15.893541	54	3	36	480	48.0	23.0
30	9	APR	1982	548	83.694580	15.884640	71	4	29	140	37.0	45.0
30	9	APR	1982	705	83.693008	15.871296	56	3	37	480	39.0	24.0
30	9	APR	1982	824	83.692337	15.854162	59	3	24	190	39.0	34.0
30	9	APR	1982	854	83.690582	15.854418	66	4	38	480	39.0	47.0
30	9	APR	1982	1012	83.688797	15.831865	54	3	30	190	31.0	18.0
30	9	APR	1982	1200	83.683731	15.811319	55	3	24	190	35.0	25.0
30	9	APR	1982	1347	83.679581	15.799473	64	4	29	190	36.0	37.0
30	9	APR	1982	1421	83.678986	15.795170	63	3	37	480	31.0	32.0
30	9	APR	1982	1440	83.677963	15.796307	48	3	28	140	37.0	24.0
30	9	APR	1982	1610	83.675674	15.790421	55	3	36	480	33.0	20.0
30	9	APR	1982	1626	83.674973	15.790491	54	3	23	140	33.0	30.0
30	9	APR	1982	1800	83.672668	15.779959	54	3	37	480	36.0	20.0
30	9	APR	1982	1950	83.670181	15.762287	60	3	34	480	36.0	29.0
30	9	APR	1982	2240	83.664749	15.727995	55	3	25	190	44.0	25.0
30	10	APR	1982	26	83.661819	15.714769	58	4	30	190	36.0	21.0
30	10	APR	1982	213	83.658966	15.704294	68	4	32	190	39.0	48.0
30	10	APR	1982	256	83.656708	15.694086	52	3	28	200	44.0	30.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	10	APR	1982	734	83.648438	15.659714	63	3	31	190	27.0	29.0
30	10	APR	1982	921	83.643509	15.651937	55	3	26	190	43.0	30.0
30	10	APR	1982	1015	83.640518	15.666880	62	5	10	140	38.0	52.0
30	10	APR	1982	1109	83.638351	15.650663	54	3	33	190	35.0	20.0
30	10	APR	1982	1144	83.636154	15.649090	53	3	31	200	44.0	27.0
30	10	APR	1982	1257	83.632690	15.647068	59	3	30	190	33.0	27.0
30	10	APR	1982	1328	83.631302	15.652420	50	3	32	200	45.0	23.0
30	10	APR	1982	1347	83.630493	15.649786	48	3	28	140	33.0	23.0
30	10	APR	1982	1533	83.625656	15.658409	50	3	34	140	29.0	19.0
30	10	APR	1982	1548	83.624878	15.657480	56	3	27	480	47.0	38.0
30	10	APR	1982	1719	83.621216	15.665184	59	4	30	140	29.0	33.0
30	10	APR	1982	1738	83.620270	15.655954	53	3	33	480	33.0	19.0
30	10	APR	1982	1927	83.616730	15.654202	58	3	38	480	33.0	24.0
30	10	APR	1982	2117	83.613495	15.650845	70	4	37	480	35.0	51.0
30	10	APR	1982	2214	83.612045	15.648058	61	3	32	200	43.0	45.0
30	10	APR	1982	2240	83.611679	15.651077	67	3	32	140	27.0	30.0
30	11	APR	1982	0	83.609360	15.652033	52	3	33	200	37.0	24.0
30	11	APR	1982	27	83.609085	15.661575	57	3	31	140	33.0	22.0
30	11	APR	1982	123	83.608414	15.675137	63	4	29	190	35.0	33.0
30	11	APR	1982	147	83.606964	15.663809	50	3	32	200	48.0	28.0
30	11	APR	1982	214	83.606400	15.674713	55	3	35	140	32.0	17.0
30	11	APR	1982	244	83.605652	15.680559	60	4	37	480	37.0	30.0
30	11	APR	1982	333	83.604599	15.681599	55	3	33	200	37.0	28.0
30	11	APR	1982	402	83.604004	15.684727	60	4	34	140	30.0	21.0
30	11	APR	1982	432	83.603455	15.688753	54	3	37	480	40.0	20.0
30	11	APR	1982	519	83.603043	15.689064	67	4	31	200	37.0	51.0
30	11	APR	1982	550	83.602142	15.690989	72	4	36	140	29.0	43.0
30	11	APR	1982	620	83.601730	15.695778	54	3	37	480	40.0	21.0
30	11	APR	1982	808	83.600739	15.696730	62	4	36	480	40.0	36.0
30	11	APR	1982	923	83.599960	15.697447	69	4	34	140	25.0	47.0
30	11	APR	1982	1109	83.599182	15.700043	55	4	31	140	30.0	24.0
30	11	APR	1982	1255	83.597824	15.705397	49	3	31	140	33.0	19.0
30	11	APR	1982	1335	83.597229	15.705282	68	4	38	480	31.0	40.0
30	11	APR	1982	1441	83.596054	15.714396	48	3	34	140	29.0	17.0
30	11	APR	1982	1524	83.595398	15.713596	57	3	38	480	33.0	22.0
30	11	APR	1982	1627	83.594711	15.717890	54	4	35	140	24.0	20.0
30	11	APR	1982	1714	83.594070	15.716360	53	3	35	480	32.0	18.0
30	11	APR	1982	1813	83.593811	15.718849	68	4	34	140	24.0	43.0
30	11	APR	1982	1904	83.593384	15.716465	57	3	37	480	32.0	22.0
30	11	APR	1982	2054	83.593460	15.715664	67	4	35	480	35.0	41.0
30	11	APR	1982	2147	83.593658	15.708986	74	4	31	140	30.0	47.0
30	11	APR	1982	2334	83.593231	15.708117	61	4	31	140	32.0	25.0
30	12	APR	1982	122	83.592484	15.709293	55	3	33	140	30.0	16.0
30	12	APR	1982	1017	83.591385	15.698236	60	4	33	140	24.0	28.0
30	12	APR	1982	1112	83.591232	15.691891	54	4	30	200	44.0	31.0
30	12	APR	1982	1203	83.591736	15.688217	51	3	28	140	31.0	21.0
30	12	APR	1982	1312	83.592209	15.688526	70	4	27	480	29.0	50.0
30	12	APR	1982	1349	83.592010	15.677811	48	3	34	140	30.0	16.0
30	12	APR	1982	1535	83.592712	15.669649	51	3	31	140	32.0	23.0
30	12	APR	1982	1626	83.592133	15.671377	61	4	33	200	45.0	46.0
30	12	APR	1982	1651	83.592545	15.676079	53	3	37	480	32.0	17.0
30	12	APR	1982	1721	83.592545	15.669733	61	4	34	140	33.0	39.0
30	12	APR	1982	1841	83.592773	15.665396	56	3	36	480	37.0	23.0
30	12	APR	1982	2031	83.593445	15.655241	65	4	37	480	30.0	32.0
30	12	APR	1982	2143	83.593842	15.647709	64	3	28	200	41.0	48.0
30	12	APR	1982	2241	83.594604	15.633183	66	4	23	140	35.0	42.0
30	12	APR	1982	2329	83.594315	15.631908	53	3	30	200	39.0	30.0
30	13	APR	1982	29	83.595001	15.622673	57	3	33	140	32.0	19.0
30	13	APR	1982	115	83.594849	15.619665	49	3	30	200	41.0	25.0
30	13	APR	1982	158	83.594604	15.610014	64	4	33	480	41.0	42.0
30	13	APR	1982	216	83.595230	15.609180	55	3	29	140	32.0	18.0
30	13	APR	1982	302	83.595078	15.606035	53	3	31	200	47.0	32.0
30	13	APR	1982	346	83.594986	15.600800	55	4	35	480	46.0	25.0
30	13	APR	1982	404	83.595581	15.600677	61	4	32	140	32.0	23.0
30	13	APR	1982	448	83.595703	15.601145	63	4	28	200	47.0	48.0
30	13	APR	1982	534	83.595688	15.591084	53	3	35	480	42.0	21.0
30	13	APR	1982	551	83.596420	15.596050	74	4	26	140	30.0	45.0
30	13	APR	1982	722	83.596466	15.575962	58	4	36	480	48.0	34.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	13	APR	1982	1027	83.598785	15.546467	53	3	24	190	38.0	37.0
30	13	APR	1982	1214	83.598495	15.532202	57	3	23	190	42.0	29.0
30	13	APR	1982	1402	83.597916	15.514032	67	4	32	190	26.0	37.0
30	13	APR	1982	1438	83.598007	15.509064	60	3	35	480	32.0	27.0
30	13	APR	1982	1703	83.596909	15.495348	67	4	31	200	40.0	55.0
30	13	APR	1982	1923	83.595398	15.488564	64	4	25	190	45.0	43.0
30	13	APR	1982	2148	83.594437	15.473621	72	4	22	140	39.0	52.0
30	13	APR	1982	2220	83.594284	15.470978	59	3	30	200	41.0	41.0
30	13	APR	1982	2336	83.593506	15.462440	60	4	24	140	43.0	22.0
30	14	APR	1982	6	83.592865	15.458410	51	3	30	200	43.0	29.0
30	14	APR	1982	41	83.592422	15.460855	60	4	26	190	36.0	23.0
30	14	APR	1982	123	83.591614	15.453060	55	3	20	140	42.0	20.0
30	14	APR	1982	153	83.591263	15.453617	50	3	29	200	38.0	24.0
30	14	APR	1982	311	83.590393	15.451164	57	4	28	140	36.0	19.0
30	14	APR	1982	458	83.589081	15.445604	67	4	31	140	38.0	34.0
30	14	APR	1982	848	83.586609	15.425373	67	4	29	480	35.0	51.0
30	14	APR	1982	936	83.586197	15.415409	54	3	25	190	45.0	23.0
30	14	APR	1982	1018	83.584808	15.412916	59	3	23	140	42.0	37.0
30	14	APR	1982	1124	83.584366	15.399265	54	3	36	190	33.0	19.0
30	14	APR	1982	1204	83.582932	15.397123	50	3	29	140	29.0	21.0
30	14	APR	1982	1312	83.582047	15.386209	62	4	36	190	25.0	21.0
30	14	APR	1982	1350	83.581253	15.380543	48	3	33	140	33.0	19.0
30	14	APR	1982	1500	83.579758	15.368700	75	4	29	190	31.0	53.0
30	14	APR	1982	1536	83.579468	15.368225	51	3	34	140	33.0	23.0
30	14	APR	1982	1722	83.577271	15.364307	62	4	25	140	38.0	46.0
30	14	APR	1982	1945	83.575043	15.352585	61	4	37	480	32.0	27.0
30	14	APR	1982	2243	83.572662	15.336157	65	4	32	140	32.0	33.0
30	14	APR	1982	2257	83.572327	15.329775	54	3	19	200	41.0	44.0
30	15	APR	1982	30	83.570984	15.327288	56	3	34	140	31.0	18.0
30	15	APR	1982	138	83.569244	15.325827	66	4	31	190	45.0	46.0
30	15	APR	1982	218	83.568802	15.320913	55	3	36	140	29.0	15.0
30	15	APR	1982	301	83.567535	15.319304	57	3	37	480	40.0	27.0
30	15	APR	1982	406	83.567017	15.312731	62	4	32	140	31.0	26.0
30	15	APR	1982	449	83.566193	15.306316	53	3	36	480	41.0	20.0
30	15	APR	1982	553	83.565231	15.302269	76	4	25	140	36.0	55.0
30	15	APR	1982	637	83.564911	15.299120	55	4	37	480	47.0	28.0
30	15	APR	1982	658	83.564636	15.296038	64	3	33	190	30.0	31.0
30	15	APR	1982	825	83.563492	15.288828	65	4	38	480	34.0	38.0
30	15	APR	1982	846	83.563354	15.290073	56	3	26	190	34.0	26.0
30	15	APR	1982	1112	83.560455	15.269732	54	3	29	140	26.0	23.0
30	15	APR	1982	1222	83.559723	15.253334	58	4	23	190	27.0	30.0
30	15	APR	1982	1258	83.558319	15.245821	48	3	31	140	34.0	20.0
30	15	APR	1982	1352	83.558640	15.230501	64	3	37	480	34.0	35.0
30	15	APR	1982	1444	83.556488	15.220665	49	3	27	140	37.0	21.0
30	15	APR	1982	1542	83.556381	15.213152	55	3	37	480	36.0	22.0
30	15	APR	1982	1732	83.554337	15.194349	53	3	34	480	33.0	19.0
30	15	APR	1982	1922	83.552979	15.181232	59	3	37	480	27.0	21.0
30	15	APR	1982	2112	83.551636	15.169477	71	4	34	480	34.0	52.0
30	15	APR	1982	2148	83.551971	15.161486	61	4	31	200	41.0	42.0
30	15	APR	1982	2334	83.550751	15.153013	51	3	27	200	42.0	30.0
30	16	APR	1982	121	83.549210	15.142960	49	3	30	200	37.0	23.0
30	16	APR	1982	307	83.547134	15.136230	53	3	26	200	36.0	28.0
30	16	APR	1982	454	83.545197	15.127720	64	4	27	200	42.0	47.0
30	17	APR	1982	145	83.514862	14.975906	67	2	28	190	30.0	36.0
30	17	APR	1982	215	83.513367	14.974957	60	3	31	480	40.0	32.0
30	17	APR	1982	403	83.511154	14.956526	54	2	37	480	40.0	21.0
30	17	APR	1982	552	83.509384	14.945662	53	3	37	480	38.0	21.0
30	17	APR	1982	706	83.508255	14.931660	63	2	32	190	28.0	26.0
30	17	APR	1982	740	83.506882	14.925772	60	3	35	480	39.0	35.0
30	17	APR	1982	854	83.506454	14.920015	55	2	35	190	32.0	22.0
30	17	APR	1982	1042	83.504333	14.907385	53	3	32	190	23.0	15.0
30	17	APR	1982	1456	83.499405	14.877766	57	2	36	480	41.0	30.0
30	17	APR	1982	2026	83.493225	14.859728	66	3	38	480	33.0	41.0
30	17	APR	1982	2152	83.493042	14.860048	70	2	30	140	32.0	42.0
30	17	APR	1982	2339	83.492508	14.862429	58	3	31	140	24.0	18.0
30	18	APR	1982	127	83.492035	14.861200	54	3	27	140	29.0	19.0
30	18	APR	1982	152	83.491379	14.864073	62	3	35	480	44.0	43.0
30	18	APR	1982	314	83.491165	14.864014	58	3	34	140	31.0	21.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	18	APR	1982	340	83.490631	14.859343	54	3	36	480	44.0	25.0
30	18	APR	1982	502	83.490509	14.859507	69	3	28	140	36.0	53.0
30	18	APR	1982	529	83.490631	14.858772	53	3	36	480	47.0	25.0
30	18	APR	1982	616	83.490295	14.860830	69	3	31	190	28.0	40.0
30	18	APR	1982	717	83.490326	14.860012	59	3	36	480	35.0	28.0
30	18	APR	1982	804	83.490051	14.860220	57	3	38	190	26.0	20.0
30	18	APR	1982	952	83.490463	14.856709	53	3	37	190	26.0	16.0
30	18	APR	1982	1022	83.490295	14.856802	57	3	31	140	33.0	30.0
30	18	APR	1982	1139	83.491013	14.852133	55	3	28	190	32.0	25.0
30	18	APR	1982	1208	83.490570	14.845415	49	3	31	140	34.0	22.0
30	18	APR	1982	1243	83.491196	14.841743	71	3	38	480	30.0	52.0
30	18	APR	1982	1308	83.490601	14.839886	49	3	32	200	39.0	21.0
30	18	APR	1982	1354	83.490555	14.829174	48	2	27	140	31.0	20.0
30	18	APR	1982	1452	83.489807	14.822090	53	3	33	200	39.0	27.0
30	18	APR	1982	1539	83.489410	14.809027	52	3	32	140	31.0	22.0
30	18	APR	1982	1623	83.489502	14.804417	53	3	37	480	33.0	19.0
30	18	APR	1982	1702	83.488403	14.796228	51	3	23	130	39.0	28.0
30	18	APR	1982	1726	83.488434	14.792696	64	3	29	140	26.0	41.0
30	18	APR	1982	1813	83.487686	14.783895	55	3	35	480	33.0	23.0
30	18	APR	1982	2002	83.485992	14.771940	63	3	36	480	34.0	35.0
30	18	APR	1982	2246	83.483246	14.770088	62	3	24	140	33.0	35.0
30	19	APR	1982	34	83.480682	14.772274	55	3	29	140	30.0	22.0
30	19	APR	1982	221	83.477386	14.769051	55	3	33	140	31.0	18.0
30	19	APR	1982	409	83.472977	14.760109	63	3	36	140	28.0	26.0
30	19	APR	1982	506	83.470078	14.761742	53	3	36	480	40.0	20.0
30	19	APR	1982	654	83.463943	14.758022	57	3	36	480	34.0	24.0
30	19	APR	1982	714	83.463211	14.749073	61	3	33	190	43.0	39.0
30	19	APR	1982	901	83.454788	14.750120	54	3	33	190	35.0	23.0
30	19	APR	1982	929	83.451920	14.760208	63	3	35	140	32.0	46.0
30	19	APR	1982	1049	83.447372	14.750521	53	4	22	190	36.0	29.0
30	19	APR	1982	1116	83.445328	14.749519	52	3	32	140	28.0	20.0
30	19	APR	1982	1200	83.442947	14.746283	49	3	27	200	35.0	22.0
30	19	APR	1982	1237	83.440948	14.740520	59	3	29	190	37.0	31.0
30	19	APR	1982	1301	83.439453	14.739544	47	3	31	140	34.0	20.0
30	19	APR	1982	1344	83.437500	14.735720	49	3	30	200	41.0	23.0
30	19	APR	1982	1410	83.436935	14.728827	60	3	37	480	35.0	31.0
30	19	APR	1982	1426	83.434464	14.733021	65	3	17	130	39.0	54.0
30	19	APR	1982	1447	83.434280	14.729282	49	3	31	140	30.0	22.0
30	19	APR	1982	1529	83.432007	14.725668	56	3	28	200	47.0	41.0
30	19	APR	1982	1600	83.430817	14.720552	53	3	37	480	31.0	18.0
30	19	APR	1982	1633	83.429153	14.719446	58	3	34	140	26.0	27.0
30	19	APR	1982	1750	83.424866	14.709082	54	3	37	480	38.0	23.0
30	19	APR	1982	1940	83.419250	14.699615	61	3	38	480	32.0	30.0
30	19	APR	1982	2153	83.414368	14.697495	68	3	36	140	30.0	36.0
30	19	APR	1982	2231	83.412628	14.700510	54	3	32	200	39.0	31.0
30	19	APR	1982	2341	83.410217	14.701298	57	3	35	140	33.0	22.0
30	20	APR	1982	18	83.408798	14.702614	48	3	29	200	47.0	30.0
30	20	APR	1982	128	83.406982	14.701401	54	3	35	140	32.0	17.0
30	20	APR	1982	204	83.406021	14.700857	49	3	28	200	38.0	32.0
30	20	APR	1982	316	83.404205	14.699461	58	3	31	140	39.0	27.0
30	20	APR	1982	350	83.403503	14.700087	57	3	26	200	43.0	40.0
30	20	APR	1982	503	83.401230	14.697678	70	3	28	140	46.0	52.0
30	20	APR	1982	811	83.394653	14.698675	56	3	30	190	36.0	22.0
30	20	APR	1982	959	83.389786	14.704319	52	3	23	190	43.0	23.0
30	20	APR	1982	1023	83.388443	14.708941	56	3	34	140	36.0	34.0
30	20	APR	1982	1147	83.385193	14.713579	56	3	29	190	27.0	23.0
30	20	APR	1982	1209	83.384781	14.715294	49	3	31	140	38.0	23.0
30	20	APR	1982	1236	83.383743	14.718689	48	3	31	200	35.0	20.0
30	20	APR	1982	1334	83.381516	14.717134	66	3	28	190	32.0	34.0
30	20	APR	1982	1421	83.380478	14.725534	50	3	31	200	42.0	27.0
30	20	APR	1982	1606	83.377487	14.732691	60	3	32	200	34.0	36.0
30	20	APR	1982	2122	83.365234	14.723240	61	3	28	200	33.0	42.0
30	20	APR	1982	2227	83.362808	14.733578	54	3	32	190	36.0	18.0
30	20	APR	1982	2248	83.363358	14.722229	61	4	10	140	48.0	51.0
30	20	APR	1982	2308	83.361832	14.728174	50	3	23	200	40.0	37.0
30	21	APR	1982	13	83.360031	14.735832	59	3	21	190	42.0	26.0
30	21	APR	1982	232	83.356812	14.733595	57	3	36	480	39.0	28.0
30	21	APR	1982	420	83.355576	14.731962	52	3	36	480	36.0	18.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	21	APR	1982	608	83.354721	14.719566	54	3	36	480	37.0	22.0
30	21	APR	1982	721	83.354980	14.710758	59	3	31	190	33.0	25.0
30	21	APR	1982	757	83.354248	14.705189	63	3	36	480	40.0	43.0
30	21	APR	1982	1057	83.358047	14.665253	53	3	32	190	27.0	19.0
30	21	APR	1982	1244	83.362259	14.627464	60	3	34	190	23.0	23.0
30	21	APR	1982	1303	83.360748	14.606007	47	3	31	140	30.0	18.0
30	21	APR	1982	1324	83.362930	14.601574	64	4	37	480	33.0	37.0
30	21	APR	1982	1449	83.365814	14.542902	50	3	27	140	32.0	25.0
30	21	APR	1982	1514	83.369125	14.533400	55	3	33	480	39.0	28.0
30	21	APR	1982	1635	83.371506	14.461124	59	3	28	140	22.0	25.0
30	21	APR	1982	1704	83.375412	14.454159	52	3	37	480	35.0	20.0
30	21	APR	1982	1854	83.380493	14.371223	57	3	37	480	34.0	26.0
30	21	APR	1982	2043	83.384003	14.292662	70	3	38	480	34.0	52.0
30	21	APR	1982	2342	83.389099	14.168701	57	3	29	140	35.0	25.0
30	22	APR	1982	130	83.390823	14.135321	54	3	28	140	31.0	16.0
30	22	APR	1982	210	83.390869	14.125395	59	3	37	480	40.0	33.0
30	22	APR	1982	358	83.392258	14.099297	53	3	37	480	35.0	18.0
30	22	APR	1982	546	83.393829	14.074478	53	3	37	480	34.0	18.0
30	22	APR	1982	631	83.395447	14.060455	65	3	33	190	32.0	33.0
30	22	APR	1982	734	83.395599	14.046761	61	3	34	480	36.0	34.0
30	22	APR	1982	818	83.397156	14.040899	55	3	33	190	32.0	26.0
30	22	APR	1982	836	83.397018	14.034910	68	3	27	200	33.0	52.0
30	22	APR	1982	1006	83.398956	14.030296	53	3	30	190	41.0	23.0
30	22	APR	1982	1025	83.398880	14.024549	55	3	34	140	31.0	27.0
30	22	APR	1982	1154	83.400085	14.028267	57	3	33	190	30.0	23.0
30	22	APR	1982	1301	83.400314	14.021250	67	3	37	480	32.0	42.0
30	22	APR	1982	1342	83.400833	14.021914	67	3	27	190	40.0	50.0
30	22	APR	1982	1356	83.400879	14.016626	48	3	23	140	40.0	27.0
30	22	APR	1982	1450	83.401108	14.002581	56	3	36	480	35.0	26.0
30	22	APR	1982	1542	83.401108	13.994125	54	3	24	140	33.0	36.0
30	22	APR	1982	1640	83.401855	13.979809	52	3	36	480	32.0	19.0
30	22	APR	1982	1830	83.403290	13.945784	56	3	37	480	35.0	25.0
30	22	APR	1982	2020	83.404938	13.905371	67	3	38	480	26.0	35.0
30	22	APR	1982	2250	83.408096	13.840395	60	3	24	140	31.0	28.0
30	23	APR	1982	37	83.409409	13.803129	55	3	29	140	35.0	24.0
30	23	APR	1982	147	83.409042	13.789263	61	3	36	480	47.0	44.0
30	23	APR	1982	225	83.410995	13.774700	56	3	32	140	34.0	22.0
30	23	APR	1982	335	83.410049	13.748129	53	3	37	480	45.0	25.0
30	23	APR	1982	412	83.412064	13.739429	65	3	31	140	29.0	27.0
30	23	APR	1982	523	83.410706	13.696812	53	3	37	480	40.0	21.0
30	23	APR	1982	711	83.412308	13.631824	59	3	33	480	40.0	35.0
30	23	APR	1982	916	83.417007	13.576307	53	3	28	190	32.0	21.0
30	23	APR	1982	932	83.416779	13.560556	61	3	26	140	36.0	36.0
30	23	APR	1982	1238	83.419373	13.494871	70	3	38	480	31.0	48.0
30	23	APR	1982	1427	83.419495	13.465376	57	3	33	480	42.0	31.0
30	23	APR	1982	1617	83.418869	13.428743	53	3	37	480	30.0	18.0
30	23	APR	1982	1636	83.417877	13.425299	60	3	32	140	30.0	36.0
30	23	APR	1982	1807	83.416214	13.389210	55	3	37	480	35.0	23.0
30	23	APR	1982	1957	83.412720	13.342297	64	3	37	480	35.0	39.0
30	24	APR	1982	949	83.391830	13.250557	56	3	29	200	39.0	38.0
30	24	APR	1982	1014	83.390915	13.249971	53	3	28	190	33.0	21.0
30	24	APR	1982	1134	83.390091	13.265141	48	3	26	200	44.0	28.0
30	24	APR	1982	1318	83.388397	13.291780	48	3	27	200	39.0	25.0
30	24	APR	1982	1404	83.386383	13.304590	59	3	29	480	32.0	33.0
30	24	APR	1982	1503	83.385315	13.326862	54	3	25	200	43.0	34.0
30	24	APR	1982	1554	83.382462	13.336117	53	3	35	480	32.0	20.0
30	24	APR	1982	1744	83.378006	13.353699	54	3	37	480	31.0	19.0
30	24	APR	1982	1934	83.373810	13.349197	62	3	38	480	37.0	37.0
30	24	APR	1982	2205	83.369537	13.334635	54	3	29	200	31.0	28.0
30	24	APR	1982	2242	83.368118	13.328918	54	3	32	190	40.0	24.0
30	24	APR	1982	2352	83.367371	13.324955	47	3	30	200	34.0	23.0
30	25	APR	1982	101	83.365784	13.327454	65	3	38	480	45.0	54.0
30	25	APR	1982	138	83.366028	13.321321	47	3	30	200	32.0	21.0
30	25	APR	1982	250	83.365067	13.321871	55	4	37	480	40.0	26.0
30	25	APR	1982	324	83.365082	13.316257	55	3	26	200	29.0	24.0
30	25	APR	1982	438	83.364029	13.310558	52	4	36	480	44.0	22.0
30	25	APR	1982	510	83.364044	13.306456	71	3	32	200	26.0	53.0
30	25	APR	1982	548	83.363998	13.296770	69	4	34	190	31.0	51.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	25	APR	1982	626	83.362366	13.293880	56	4	37	480	40.0	27.0
30	25	APR	1982	736	83.361710	13.275858	57	4	33	190	39.0	28.0
30	25	APR	1982	814	83.359924	13.274178	67	3	38	480	38.0	50.0
30	25	APR	1982	841	83.358688	13.270798	65	3	26	200	43.0	52.0
30	25	APR	1982	924	83.358597	13.258884	52	3	32	190	27.0	17.0
30	25	APR	1982	1026	83.355530	13.247715	52	3	27	200	40.0	28.0
30	25	APR	1982	1112	83.354385	13.238008	54	4	27	190	24.0	19.0
30	25	APR	1982	1210	83.352066	13.232283	47	3	30	200	37.0	21.0
30	25	APR	1982	1259	83.350311	13.224800	63	4	23	190	34.0	46.0
30	25	APR	1982	1341	83.349335	13.218164	61	3	38	480	33.0	31.0
30	25	APR	1982	1531	83.345276	13.213518	53	3	36	480	39.0	24.0
30	25	APR	1982	1721	83.340836	13.199877	53	3	37	480	35.0	21.0
30	25	APR	1982	1911	83.336395	13.176872	60	3	34	480	42.0	38.0
30	25	APR	1982	2152	83.329315	13.146383	54	3	28	190	47.0	35.0
30	26	APR	1982	227	83.317551	13.128565	56	3	36	480	42.0	29.0
30	26	APR	1982	415	83.313675	13.120148	52	3	36	480	34.0	17.0
30	26	APR	1982	603	83.310257	13.107403	54	3	37	480	35.0	21.0
30	26	APR	1982	646	83.309753	13.090683	61	3	28	190	27.0	29.0
30	26	APR	1982	751	83.306427	13.089935	64	3	38	480	36.0	41.0
30	26	APR	1982	834	83.304596	13.070704	53	3	38	190	29.0	18.0
30	26	APR	1982	918	83.300766	13.069227	59	3	27	200	39.0	38.0
30	26	APR	1982	1022	83.298126	13.048668	52	3	32	190	32.0	20.0
30	26	APR	1982	1102	83.294418	13.038996	49	3	30	200	34.0	22.0
30	26	APR	1982	1209	83.291061	13.019707	58	3	35	190	28.0	24.0
30	26	APR	1982	1247	83.288696	13.011456	46	3	30	200	39.0	22.0
30	26	APR	1982	1318	83.288132	13.003569	63	3	37	480	31.0	32.0
30	26	APR	1982	1432	83.283966	12.997757	51	3	27	200	44.0	28.0
30	26	APR	1982	1508	83.282959	12.993280	54	3	37	480	34.0	22.0
30	26	APR	1982	1617	83.280334	12.986441	63	3	29	200	32.0	43.0
30	26	APR	1982	1658	83.279114	12.978640	52	3	37	480	32.0	18.0
30	26	APR	1982	1848	83.276337	12.962481	58	3	37	480	31.0	25.0
30	26	APR	1982	2103	83.272720	12.942778	59	3	22	130	39.0	32.0
30	26	APR	1982	2320	83.269455	12.923090	47	3	23	200	47.0	34.0
30	27	APR	1982	35	83.268112	12.917929	62	3	30	190	41.0	34.0
30	27	APR	1982	106	83.266830	12.912678	46	3	26	200	47.0	31.0
30	27	APR	1982	204	83.265076	12.908491	58	3	36	480	42.0	32.0
30	27	APR	1982	252	83.264572	12.901070	52	3	27	200	31.0	24.0
30	27	APR	1982	352	83.263031	12.898640	52	3	36	480	36.0	19.0
30	27	APR	1982	411	83.263443	12.893074	55	3	26	130	30.0	21.0
30	27	APR	1982	438	83.262451	12.890606	66	4	30	200	30.0	46.0
30	27	APR	1982	540	83.260895	12.882771	53	3	37	480	41.0	23.0
30	27	APR	1982	728	83.258804	12.866049	62	3	36	480	39.0	38.0
30	27	APR	1982	747	83.258087	12.861134	55	3	21	130	35.0	23.0
30	27	APR	1982	810	83.256882	12.864321	69	4	30	200	26.0	46.0
30	27	APR	1982	954	83.252472	12.833975	54	3	30	200	34.0	29.0
30	27	APR	1982	1139	83.247147	12.801460	47	3	30	200	38.0	23.0
30	27	APR	1982	1255	83.243927	12.768852	65	3	33	480	33.0	42.0
30	27	APR	1982	1445	83.236893	12.751204	55	3	37	480	34.0	23.0
30	27	APR	1982	1508	83.234772	12.748518	54	3	30	200	32.0	27.0
30	27	APR	1982	1635	83.230423	12.727192	52	3	37	480	33.0	19.0
30	27	APR	1982	1654	83.229813	12.733574	70	4	29	200	29.0	54.0
30	27	APR	1982	1825	83.225266	12.702320	56	3	37	480	34.0	24.0
30	28	APR	1982	841	83.183807	12.486710	52	3	26	190	25.0	17.0
30	28	APR	1982	1545	83.148865	12.278469	58	4	17	200	35.0	47.0
30	28	APR	1982	1802	83.137756	12.210938	54	3	37	480	33.0	22.0
30	28	APR	1982	1952	83.129227	12.155054	65	4	34	480	32.0	34.0
30	29	APR	1982	118	83.102020	12.018982	61	4	36	480	32.0	30.0
30	29	APR	1982	307	83.094498	11.948462	53	3	36	480	44.0	25.0
30	29	APR	1982	455	83.089233	11.884817	51	3	36	480	40.0	21.0
30	29	APR	1982	603	83.086563	11.844641	65	4	23	190	39.0	37.0
30	29	APR	1982	643	83.083374	11.841818	57	4	36	480	43.0	32.0
30	29	APR	1982	751	83.080093	11.814543	54	4	34	190	32.0	23.0
30	29	APR	1982	831	83.076553	11.813957	70	4	33	480	32.0	53.0
30	29	APR	1982	1127	83.058624	11.728022	54	3	28	190	30.0	23.0
30	29	APR	1982	1209	83.055389	11.682192	71	4	38	480	30.0	49.0
30	29	APR	1982	1252	83.047562	11.694113	45	3	25	200	38.0	23.0
30	29	APR	1982	1359	83.041840	11.644625	57	4	36	480	31.0	25.0
30	29	APR	1982	1437	83.035355	11.640238	50	4	30	200	34.0	25.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	29	APR	1982	1549	83.028656	11.604666	51	3	36	480	40.0	23.0
30	29	APR	1982	1622	83.024918	11.605772	64	4	31	200	31.0	42.0
30	29	APR	1982	1739	83.018097	11.570696	53	3	36	480	28.0	18.0
30	29	APR	1982	1835	83.013016	11.566435	62	4	31	190	41.0	41.0
30	29	APR	1982	1929	83.010345	11.539890	61	4	36	480	38.0	37.0
30	29	APR	1982	2020	83.008301	11.537567	54	4	27	130	29.0	26.0
30	29	APR	1982	2139	83.003799	11.509596	53	4	30	200	31.0	28.0
30	29	APR	1982	2325	82.999222	11.477934	45	3	28	200	32.0	23.0
30	30	APR	1982	56	82.991440	11.455227	63	4	37	480	41.0	44.0
30	30	APR	1982	112	82.992691	11.435791	45	3	25	200	40.0	25.0
30	30	APR	1982	137	82.991226	11.422375	53	4	29	140	37.0	19.0
30	30	APR	1982	244	82.985489	11.400974	53	3	34	480	43.0	25.0
30	30	APR	1982	324	82.985001	11.379807	60	4	25	140	41.0	30.0
30	30	APR	1982	432	82.981186	11.358791	50	4	36	480	38.0	19.0
30	30	APR	1982	620	82.976547	11.340633	55	4	36	480	33.0	22.0
30	30	APR	1982	808	82.970901	11.343870	66	4	37	480	32.0	41.0
30	30	APR	1982	845	82.967407	11.347830	64	4	25	140	37.0	41.0
30	30	APR	1982	1036	82.958435	11.326662	51	3	31	190	33.0	22.0
30	30	APR	1982	1146	82.953033	11.294367	74	4	36	480	28.0	55.0
30	30	APR	1982	1224	82.946411	11.308939	59	4	29	190	34.0	35.0
30	30	APR	1982	1526	82.927902	11.276915	51	3	37	480	37.0	22.0
30	30	APR	1982	1716	82.918503	11.259924	51	3	37	480	38.0	22.0
30	30	APR	1982	1906	82.912811	11.251373	59	4	38	480	35.0	30.0
30	30	APR	1982	2030	82.911316	11.254322	62	4	28	200	31.0	36.0
30	30	APR	1982	2118	82.909943	11.261440	51	4	26	190	38.0	22.0
30	30	APR	1982	2216	82.908951	11.256111	49	4	30	200	35.0	26.0
30	1	MAY	1982	2	82.907074	11.245518	44	3	30	200	25.0	16.0
30	1	MAY	1982	33	82.905106	11.241808	66	4	37	480	37.0	46.0
30	1	MAY	1982	149	82.905258	11.203060	46	4	28	200	28.0	19.0
30	1	MAY	1982	221	82.901962	11.193110	54	4	36	480	39.0	25.0
30	1	MAY	1982	238	82.903595	11.170094	61	4	22	130	36.0	37.0
30	1	MAY	1982	335	82.900162	11.153482	56	4	29	200	27.0	26.0
30	1	MAY	1982	409	82.897400	11.134445	50	4	36	480	38.0	19.0
30	1	MAY	1982	426	82.899139	11.124039	52	3	23	130	33.0	25.0
30	1	MAY	1982	614	82.895828	11.083225	50	4	23	130	33.0	20.0
30	1	MAY	1982	746	82.893036	11.044771	63	4	37	480	36.0	40.0
30	1	MAY	1982	801	82.893524	11.044209	56	4	20	130	37.0	24.0
30	1	MAY	1982	852	82.890640	11.029976	58	4	29	200	30.0	30.0
30	1	MAY	1982	1037	82.885666	10.995348	47	4	27	200	32.0	20.0
30	1	MAY	1982	1221	82.878265	10.955158	44	4	27	200	32.0	18.0
30	1	MAY	1982	1406	82.870529	10.907412	47	4	28	200	34.0	22.0
30	1	MAY	1982	1551	82.862137	10.852783	59	4	29	200	36.0	37.0
30	1	MAY	1982	1652	82.858032	10.814524	50	4	37	480	35.0	20.0
30	1	MAY	1982	1842	82.849350	10.758347	56	4	37	480	37.0	28.0
30	1	MAY	1982	2107	82.841324	10.673918	56	4	27	200	28.0	26.0
30	1	MAY	1982	2254	82.837479	10.607290	46	3	29	200	26.0	18.0
30	2	MAY	1982	0	82.834076	10.546757	58	4	26	190	45.0	39.0
30	2	MAY	1982	226	82.834183	10.447779	48	4	31	200	27.0	20.0
30	2	MAY	1982	412	82.831619	10.384020	61	4	30	200	25.0	32.0
30	2	MAY	1982	520	82.830307	10.331472	69	4	27	190	36.0	44.0
30	2	MAY	1982	534	82.828262	10.337938	51	4	26	480	41.0	27.0
30	2	MAY	1982	708	82.826553	10.291973	56	4	31	190	34.0	23.0
30	2	MAY	1982	723	82.825348	10.296188	60	4	26	480	33.0	39.0
30	2	MAY	1982	744	82.824066	10.290546	71	4	27	200	31.0	55.0
30	2	MAY	1982	856	82.821732	10.256348	50	4	37	190	29.0	17.0
30	2	MAY	1982	929	82.818741	10.254097	53	4	25	200	34.0	29.0
30	2	MAY	1982	1044	82.814362	10.229568	51	4	32	190	30.0	21.0
30	2	MAY	1982	1232	82.804932	10.206814	59	4	30	190	38.0	41.0
30	2	MAY	1982	1250	82.804794	10.194141	63	4	34	480	33.0	38.0
30	2	MAY	1982	1440	82.793594	10.174212	52	4	37	480	29.0	18.0
30	2	MAY	1982	1630	82.781296	10.141045	50	4	31	480	31.0	17.0
30	2	MAY	1982	1753	82.770752	10.127296	66	4	27	190	47.0	55.0
30	2	MAY	1982	2009	82.761459	10.050127	67	4	38	480	36.0	47.0
30	3	MAY	1982	136	82.755829	9.888790	57	4	37	480	42.0	33.0
30	3	MAY	1982	245	82.756409	9.864216	59	4	31	130	27.0	23.0
30	3	MAY	1982	304	82.756256	9.864460	51	4	30	200	20.0	17.0
30	3	MAY	1982	324	82.755264	9.858839	50	4	36	480	47.0	25.0
30	3	MAY	1982	450	82.754547	9.846199	68	4	30	200	19.0	33.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	3	MAY	1982	512	82.753983	9.846045	50	4	36	480	39.0	21.0
30	3	MAY	1982	700	82.751740	9.838190	58	4	34	480	38.0	32.0
30	3	MAY	1982	806	82.749725	9.828346	51	4	27	190	35.0	29.0
30	3	MAY	1982	954	82.745834	9.827490	49	3	30	190	36.0	24.0
30	3	MAY	1982	1142	82.740341	9.823448	54	4	30	190	35.0	26.0
30	3	MAY	1982	1226	82.738510	9.813087	66	4	36	480	31.0	39.0
30	3	MAY	1982	1329	82.732864	9.804220	67	4	20	190	41.0	52.0
30	3	MAY	1982	1416	82.731445	9.802094	54	4	37	480	35.0	24.0
30	3	MAY	1982	1606	82.722351	9.780169	49	4	36	480	36.0	21.0
30	3	MAY	1982	1756	82.713318	9.752985	53	4	36	480	30.0	20.0
30	3	MAY	1982	1850	82.708466	9.745955	58	4	37	190	40.0	32.0
30	3	MAY	1982	1946	82.705673	9.717266	64	4	37	480	26.0	29.0
30	4	MAY	1982	113	82.701477	9.614037	59	4	37	480	43.0	38.0
30	4	MAY	1982	449	82.701736	9.581516	50	4	36	480	39.0	20.0
30	4	MAY	1982	637	82.700562	9.570208	56	4	36	480	35.0	26.0
30	4	MAY	1982	1204	82.693802	9.527960	69	4	34	480	26.0	40.0
30	4	MAY	1982	1353	82.690002	9.502789	55	4	33	480	33.0	27.0
30	4	MAY	1982	1543	82.684509	9.454830	50	4	37	480	34.0	19.0
30	4	MAY	1982	1733	82.676483	9.392267	51	4	37	480	26.0	16.0
30	4	MAY	1982	1800	82.670914	9.389978	63	4	26	190	46.0	54.0
30	4	MAY	1982	1923	82.667038	9.313763	61	4	38	480	33.0	32.0
30	5	MAY	1982	426	82.668472	8.745882	49	4	36	480	34.0	17.0
30	5	MAY	1982	440	82.672531	8.737831	50	4	17	130	48.0	42.0
30	5	MAY	1982	614	82.673218	8.656221	54	4	36	480	37.0	24.0
30	5	MAY	1982	1119	82.681396	8.490383	44	4	29	200	32.0	19.0
30	5	MAY	1982	1140	82.682678	8.477903	72	4	37	480	29.0	53.0
30	5	MAY	1982	1303	82.682755	8.433519	43	4	28	200	35.0	22.0
30	5	MAY	1982	1330	82.685150	8.422796	57	4	37	480	25.0	21.0
30	5	MAY	1982	1448	82.684402	8.373760	50	4	26	200	29.0	24.0
30	5	MAY	1982	1520	82.686142	8.359888	50	4	35	480	32.0	19.0
30	5	MAY	1982	1633	82.684586	8.308998	66	5	26	200	26.0	46.0
30	5	MAY	1982	1710	82.685226	8.292513	50	4	37	480	32.0	19.0
30	5	MAY	1982	2004	82.679688	8.171350	64	4	31	200	26.0	38.0
30	5	MAY	1982	2150	82.675110	8.107256	49	4	31	200	28.0	22.0
30	5	MAY	1982	2206	82.675354	8.092039	59	4	30	140	32.0	29.0
30	5	MAY	1982	2336	82.671951	8.049717	43	4	26	200	27.0	19.0
30	6	MAY	1982	28	82.669495	8.030479	65	4	23	480	48.0	49.0
30	6	MAY	1982	123	82.668503	8.013037	44	4	28	200	24.0	17.0
30	6	MAY	1982	309	82.667847	7.965457	52	4	29	200	27.0	23.0
30	6	MAY	1982	404	82.666138	7.931553	49	4	28	480	33.0	17.0
30	6	MAY	1982	455	82.666794	7.907813	70	5	29	200	22.0	42.0
30	6	MAY	1982	535	82.666565	7.868494	66	4	30	190	39.0	37.0
30	6	MAY	1982	552	82.665222	7.864973	52	4	29	480	29.0	21.0
30	6	MAY	1982	723	82.667343	7.798639	53	4	32	190	34.0	29.0
30	6	MAY	1982	740	82.665482	7.787933	63	4	34	480	36.0	40.0
30	6	MAY	1982	826	82.666183	7.772601	61	4	31	200	28.0	34.0
30	6	MAY	1982	850	82.666229	7.757897	60	4	28	140	33.0	38.0
30	6	MAY	1982	911	82.667831	7.745343	49	4	29	190	43.0	25.0
30	6	MAY	1982	1011	82.666855	7.722724	47	4	29	200	29.0	20.0
30	6	MAY	1982	1036	82.666946	7.715767	49	4	32	140	41.0	27.0
30	6	MAY	1982	1059	82.668091	7.712412	51	4	27	190	38.0	31.0
30	6	MAY	1982	1155	82.667511	7.701406	43	4	27	200	26.0	14.0
30	6	MAY	1982	1222	82.667633	7.702884	45	4	32	140	29.0	16.0
30	6	MAY	1982	1247	82.667740	7.703922	60	4	28	190	39.0	43.0
30	6	MAY	1982	1307	82.667938	7.703627	60	4	37	480	29.0	26.0
30	6	MAY	1982	1340	82.667740	7.701118	45	4	29	200	23.0	14.0
30	6	MAY	1982	1407	82.667908	7.700864	47	4	35	140	32.0	20.0
30	6	MAY	1982	1457	82.667923	7.698918	51	4	37	480	36.0	22.0
30	6	MAY	1982	1525	82.667343	7.691208	55	4	27	200	26.0	26.0
30	6	MAY	1982	1553	82.667252	7.687521	56	4	35	140	30.0	29.0
30	6	MAY	1982	1647	82.666519	7.676336	50	4	37	480	30.0	17.0
30	6	MAY	1982	1807	82.663528	7.660458	62	4	34	190	41.0	40.0
30	6	MAY	1982	1837	82.663651	7.646082	56	4	37	480	28.0	21.0
30	6	MAY	1982	1952	82.661438	7.622405	51	4	25	130	35.0	25.0
30	6	MAY	1982	2027	82.660400	7.609085	70	5	38	480	25.0	39.0
30	6	MAY	1982	2041	82.660568	7.604042	57	4	23	200	20.0	26.0
30	6	MAY	1982	2114	82.660202	7.591217	65	4	31	140	32.0	34.0
30	6	MAY	1982	2301	82.658127	7.577227	54	4	31	140	36.0	25.0

FRAM 4 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	7	MAY	1982	5	82.657227	7.575543	68	4	37	480	29.0	42.0
30	7	MAY	1982	49	82.657181	7.577943	51	4	27	140	34.0	18.0
30	7	MAY	1982	153	82.657196	7.577609	55	4	37	480	31.0	22.0
30	7	MAY	1982	236	82.657410	7.579105	56	4	35	140	34.0	22.0
30	7	MAY	1982	341	82.656738	7.575600	49	4	36	480	32.0	16.0
30	7	MAY	1982	529	82.655197	7.561511	51	4	37	480	34.0	19.0
30	7	MAY	1982	717	82.652832	7.545945	60	4	33	480	40.0	36.0
30	7	MAY	1982	758	82.651382	7.543267	68	4	33	140	27.0	49.0
30	7	MAY	1982	944	82.648270	7.528256	53	4	26	140	40.0	29.0
30	7	MAY	1982	1130	82.645752	7.517391	46	4	23	140	41.0	20.0
30	7	MAY	1982	1156	82.645645	7.522256	55	4	23	190	41.0	39.0
30	7	MAY	1982	1244	82.644928	7.515823	62	4	38	480	26.0	27.0
30	7	MAY	1982	1315	82.644287	7.516109	45	4	31	140	34.0	21.0
30	7	MAY	1982	1434	82.643356	7.513235	52	4	37	480	34.0	21.0
30	7	MAY	1982	1501	82.642670	7.512106	51	4	23	140	27.0	29.0
30	7	MAY	1982	1601	82.642090	7.513061	61	4	29	200	26.0	31.0
30	7	MAY	1982	1624	82.641586	7.507768	49	4	36	480	28.0	16.0
30	7	MAY	1982	1716	82.640121	7.506379	46	4	23	130	33.0	23.0
30	7	MAY	1982	1814	82.638596	7.490018	54	4	37	480	28.0	20.0
30	7	MAY	1982	1902	82.636520	7.475461	48	4	30	130	32.0	19.0
30	7	MAY	1982	1932	82.636459	7.461045	70	4	29	200	24.0	43.0
30	7	MAY	1982	2004	82.634827	7.454733	67	4	38	480	27.0	36.0
30	7	MAY	1982	2118	82.633057	7.431851	52	4	30	200	23.0	20.0
30	7	MAY	1982	2208	82.632065	7.418065	58	4	21	140	47.0	52.0
30	7	MAY	1982	2304	82.631012	7.409265	43	4	30	200	26.0	17.0
30	8	MAY	1982	51	82.629898	7.396313	42	4	26	200	28.0	19.0
30	8	MAY	1982	130	82.629623	7.392325	56	4	37	480	30.0	23.0
30	8	MAY	1982	237	82.629471	7.389805	49	4	29	200	29.0	24.0
30	8	MAY	1982	318	82.629364	7.388172	50	4	36	480	41.0	21.0
30	8	MAY	1982	424	82.628510	7.379916	64	4	26	200	25.0	34.0
30	8	MAY	1982	506	82.627975	7.378419	50	4	36	480	37.0	20.0
30	8	MAY	1982	654	82.625397	7.364316	58	4	36	480	36.0	30.0
30	8	MAY	1982	730	82.624680	7.351809	52	4	26	190	46.0	31.0
30	8	MAY	1982	754	82.622604	7.357869	65	4	30	200	25.0	37.0
30	8	MAY	1982	918	82.619781	7.333446	48	4	30	190	34.0	21.0
30	8	MAY	1982	939	82.618134	7.331657	49	4	24	200	29.0	19.0
30	8	MAY	1982	1124	82.613342	7.310928	43	4	29	200	26.0	15.0
30	8	MAY	1982	1221	82.612076	7.295797	65	4	37	480	31.0	37.0
30	8	MAY	1982	1308	82.610123	7.299651	43	4	22	200	33.0	23.0
30	8	MAY	1982	1411	82.608749	7.286891	53	4	37	480	27.0	18.0
30	8	MAY	1982	1751	82.603653	7.249277	52	4	37	480	31.0	20.0
30	8	MAY	1982	1813	82.602173	7.242918	46	4	20	130	33.0	19.0
30	8	MAY	1982	1941	82.600357	7.217554	64	4	37	480	24.0	27.0
30	8	MAY	1982	1959	82.599472	7.210615	52	4	26	130	33.0	29.0
30	9	MAY	1982	108	82.593567	7.143705	58	4	37	480	30.0	25.0
30	9	MAY	1982	256	82.593094	7.137972	50	4	36	480	26.0	14.0
30	9	MAY	1982	444	82.592117	7.130544	49	4	36	480	31.0	16.0
30	9	MAY	1982	501	82.591721	7.124568	72	5	23	200	35.0	54.0
30	9	MAY	1982	632	82.590057	7.115921	56	4	36	480	34.0	25.0
30	9	MAY	1982	820	82.587616	7.102197	70	5	38	480	33.0	55.0
30	9	MAY	1982	945	82.583740	7.079812	52	4	32	140	36.0	26.0
30	9	MAY	1982	1131	82.581039	7.058781	45	4	31	140	35.0	20.0
30	9	MAY	1982	1158	82.580872	7.050424	68	4	37	480	31.0	42.0
30	9	MAY	1982	1317	82.579254	7.044644	45	4	34	140	32.0	18.0
30	9	MAY	1982	1503	82.578552	7.038090	51	4	25	140	37.0	28.0
30	9	MAY	1982	1538	82.578491	7.032227	49	4	37	480	24.0	14.0
30	9	MAY	1982	1649	82.577911	7.025967	66	5	29	140	25.0	43.0
30	9	MAY	1982	1911	82.576416	7.003793	54	4	27	190	48.0	39.0
30	9	MAY	1982	2022	82.577209	6.980256	71	5	35	140	29.0	42.0
30	9	MAY	1982	2056	82.576019	6.973696	59	4	31	130	27.0	28.0
30	9	MAY	1982	2210	82.577057	6.952504	57	4	33	140	26.0	20.0
30	9	MAY	1982	2357	82.578934	6.928420	51	4	34	140	38.0	21.0
30	10	MAY	1982	45	82.580490	6.913794	61	4	30	480	31.0	26.0
30	10	MAY	1982	145	82.584106	6.904285	53	4	32	140	32.0	17.0
30	10	MAY	1982	233	82.586548	6.891457	51	4	31	480	32.0	17.0
30	10	MAY	1982	333	82.590866	6.894408	63	4	36	140	30.0	28.0
30	10	MAY	1982	421	82.593811	6.886789	49	4	36	480	27.0	13.0
30	10	MAY	1982	550	82.598587	6.905067	61	4	32	190	34.0	38.0

FRAM 4 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	10	MAY	1982	609	82.599655	6.899872	54	4	36	480	32.0	21.0
30	10	MAY	1982	738	82.602798	6.905850	51	4	29	190	47.0	31.0
30	10	MAY	1982	757	82.603149	6.897423	67	5	37	480	35.0	47.0
30	10	MAY	1982	853	82.605118	6.900026	58	4	21	140	36.0	39.0
30	10	MAY	1982	926	82.605469	6.901523	48	4	27	190	43.0	27.0
30	10	MAY	1982	1039	82.607910	6.897597	48	4	31	140	33.0	22.0
30	10	MAY	1982	1135	82.609131	6.908057	71	4	38	480	25.0	42.0
30	10	MAY	1982	1225	82.611343	6.901188	44	4	31	140	41.0	23.0
30	10	MAY	1982	1325	82.613174	6.910678	56	4	36	480	23.0	18.0
30	10	MAY	1982	1410	82.615372	6.909303	48	4	33	140	30.0	19.0
30	10	MAY	1982	1515	82.617172	6.920542	50	4	36	480	33.0	19.0
30	10	MAY	1982	1556	82.618896	6.920943	58	4	33	140	30.0	31.0
30	10	MAY	1982	1705	82.620224	6.929416	51	4	36	480	26.0	15.0
30	10	MAY	1982	1855	82.621002	6.930722	59	4	37	480	27.0	24.0
30	10	MAY	1982	2044	82.620407	6.922058	75	5	35	480	24.0	52.0
30	10	MAY	1982	2117	82.620941	6.916574	63	4	35	140	29.0	27.0
30	10	MAY	1982	2152	82.620270	6.913337	69	5	29	130	29.0	55.0
30	10	MAY	1982	2304	82.620605	6.911733	53	4	30	140	35.0	19.0
30	11	MAY	1982	22	82.620361	6.907493	63	4	37	480	28.0	31.0
30	11	MAY	1982	52	82.620804	6.909628	51	4	29	140	33.0	24.0
30	11	MAY	1982	210	82.621094	6.910126	52	4	36	480	32.0	20.0
30	11	MAY	1982	240	82.621674	6.916128	57	4	27	140	33.0	32.0

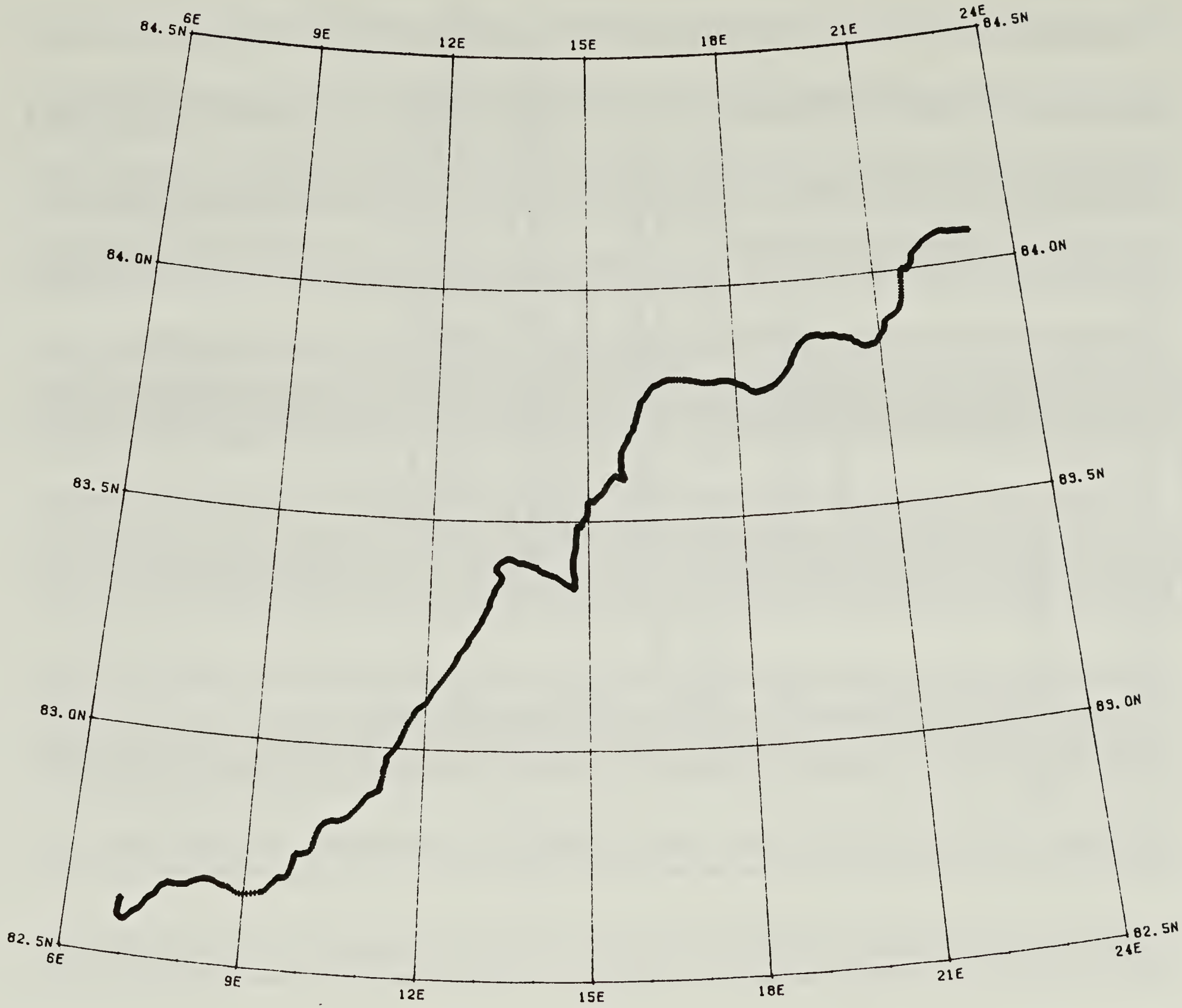

Figure 3 Drift track of FRAM IV based upon smoothed fixes and hourly interpolations as determined by Kalman filtering.

SMOOTHED HOURLY POSITIONS, ORIGINAL FILTERED POSITIONS,

AND ICE VELOCITIES

OF THE FRAM IV DRIFTING STATION

Key to Column Headings

DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
JULDAY	Relative Julian Day, Day 1 = Jan 01, 1982
LATITUDE	North Latitude in decimal degrees
LONGITUDE	Longitude in decimal degrees, (negative implies west longitude)
N-VEL	North-South component of ice velocity (cm/sec) positive values indicate north velocity negative values indicate south velocity
E-VEL	East-West component of ice velocity (cm/sec) positive values indicate east velocity negative values indicate west velocity

TABLE 3

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
25	MAR	1982	1000	84.416664	84.046379	22.023018	-3.3	-3.6
25	MAR	1982	1039	84.443748	84.045662	22.013706	-3.5	-5.5
25	MAR	1982	1100	84.458336	84.045258	22.007248	-3.6	-6.3
25	MAR	1982	1149	84.492363	84.044319	21.990515	-3.3	-6.3
25	MAR	1982	1200	84.500000	84.044128	21.987011	-3.1	-5.9
25	MAR	1982	1224	84.516670	84.043747	21.980057	-2.7	-5.2
25	MAR	1982	1300	84.541664	84.043274	21.971113	-2.2	-4.4
25	MAR	1982	1335	84.565971	84.042854	21.963499	-2.3	-4.0
25	MAR	1982	1400	84.583336	84.042519	21.958508	-2.7	-3.7
25	MAR	1982	1437	84.609032	84.041893	21.951952	-3.5	-3.1
25	MAR	1982	1500	84.625000	84.041428	21.948469	-4.0	-2.7
25	MAR	1982	1521	84.639580	84.040970	21.945589	-4.1	-2.6
25	MAR	1982	1553	84.661804	84.040276	21.941364	-3.7	-2.6
25	MAR	1982	1600	84.666664	84.040138	21.940401	-3.6	-2.7
25	MAR	1982	1700	84.708336	84.039154	21.931410	-2.7	-3.0
25	MAR	1982	1707	84.713196	84.039055	21.930313	-2.7	-3.0
25	MAR	1982	1800	84.750000	84.038239	21.921415	-3.3	-3.6
25	MAR	1982	1817	84.761803	84.037918	21.918072	-3.7	-4.0
25	MAR	1982	1853	84.786804	84.037117	21.909855	-4.4	-4.8
25	MAR	1982	1900	84.791664	84.036949	21.908058	-4.5	-5.0
25	MAR	1982	2000	84.833336	84.035461	21.890806	-4.5	-5.8
25	MAR	1982	2007	84.838196	84.035294	21.888699	-4.4	-5.8
25	MAR	1982	2100	84.875000	84.034119	21.873251	-3.8	-5.3
25	MAR	1982	2200	84.916664	84.032928	21.858824	-3.6	-3.9
25	MAR	1982	2255	84.954857	84.031807	21.849634	-4.0	-2.6
25	MAR	1982	2300	84.958336	84.031700	21.848974	-4.1	-2.5
26	MAR	1982	0	85.000000	84.030266	21.842630	-4.8	-1.7
26	MAR	1982	14	85.009720	84.029900	21.841381	-4.9	-1.7
26	MAR	1982	41	85.028473	84.029152	21.839106	-5.3	-1.6
26	MAR	1982	100	85.041664	84.028595	21.837627	-5.5	-1.4
26	MAR	1982	200	85.083336	84.026588	21.834021	-7.0	-0.8
26	MAR	1982	201	85.084030	84.026550	21.833979	-7.1	-0.8
26	MAR	1982	227	85.102081	84.025497	21.833097	-7.8	-0.5
26	MAR	1982	300	85.125000	84.024055	21.832340	-8.3	-0.5
26	MAR	1982	323	85.140968	84.023018	21.831671	-8.4	-0.7
26	MAR	1982	349	85.159027	84.021843	21.830526	-8.4	-1.0
26	MAR	1982	400	85.166664	84.021347	21.829920	-8.3	-1.1
26	MAR	1982	414	85.176384	84.020714	21.829044	-8.3	-1.3
26	MAR	1982	500	85.208336	84.018684	21.825661	-7.9	-1.5
26	MAR	1982	511	85.215973	84.018219	21.824799	-7.7	-1.5
26	MAR	1982	536	85.233330	84.017197	21.822863	-7.4	-1.5
26	MAR	1982	600	85.250000	84.016258	21.821167	-7.1	-1.3
26	MAR	1982	600	85.250000	84.016258	21.821167	-7.1	-1.3
26	MAR	1982	659	85.290970	84.014084	21.817682	-6.6	-1.2
26	MAR	1982	700	85.291664	84.014053	21.817619	-6.6	-1.2
26	MAR	1982	800	85.333336	84.012001	21.812429	-5.9	-2.3
26	MAR	1982	848	85.366669	84.010635	21.804998	-4.5	-3.7
26	MAR	1982	900	85.375000	84.010361	21.802629	-4.1	-4.0
26	MAR	1982	1000	85.416664	84.009361	21.788391	-2.1	-5.0
26	MAR	1982	1100	85.458336	84.008949	21.773178	-0.7	-4.6
26	MAR	1982	1200	85.500000	84.008774	21.761246	-0.7	-3.0
26	MAR	1982	1243	85.529854	84.008522	21.756216	-1.6	-1.6
26	MAR	1982	1300	85.541664	84.008354	21.755049	-2.1	-1.1
26	MAR	1982	1400	85.583336	84.007355	21.753393	-4.2	-0.3
26	MAR	1982	1414	85.593056	84.007011	21.753136	-4.8	-0.4
26	MAR	1982	1500	85.625000	84.005592	21.751732	-6.5	-0.9
26	MAR	1982	1600	85.666664	84.003372	21.747467	-6.6	-1.9
26	MAR	1982	1604	85.669441	84.003227	21.747065	-6.6	-2.0
26	MAR	1982	1630	85.687500	84.002357	21.744078	-5.8	-2.5
26	MAR	1982	1700	85.708336	84.001511	21.739775	-4.7	-3.1
26	MAR	1982	1754	85.745827	84.000435	21.728786	-2.8	-4.9
26	MAR	1982	1800	85.750000	84.000351	21.727215	-2.6	-5.2
26	MAR	1982	1900	85.791664	83.999817	21.707909	-0.6	-7.0
26	MAR	1982	1944	85.822227	83.999893	21.691492	1.3	-7.3
26	MAR	1982	2000	85.833336	84.000031	21.685484	1.9	-7.2
26	MAR	1982	2100	85.875000	84.000969	21.663836	3.5	-6.6
26	MAR	1982	2133	85.897919	84.001610	21.652924	3.6	-6.2
26	MAR	1982	2200	85.916664	84.002121	21.644594	3.4	-5.8

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
23	MAR	1982	1255	82.538193	84.065910	23.119040	-0.1	-0.2
23	MAR	1982	1300	82.541664	84.065910	23.118990	-0.1	-0.2
23	MAR	1982	1400	82.583336	84.065910	23.117496	0.2	-1.0
23	MAR	1982	1440	82.611107	84.066010	23.114542	0.7	-1.7
23	MAR	1982	1500	82.625000	84.066093	23.112602	0.9	-2.0
23	MAR	1982	1523	82.640968	84.066208	23.110023	0.9	-2.3
23	MAR	1982	1600	82.666664	84.066391	23.104794	0.9	-3.1
23	MAR	1982	1624	82.683334	84.066513	23.100458	0.9	-3.8
23	MAR	1982	1700	82.708336	84.066666	23.092314	0.6	-4.9
23	MAR	1982	1713	82.717361	84.066696	23.088858	0.3	-5.3
23	MAR	1982	1800	82.750000	84.066711	23.075214	-0.1	-5.4
23	MAR	1982	1809	82.756248	84.066704	23.072744	-0.1	-5.1
23	MAR	1982	1900	82.791664	84.066704	23.061548	0.2	-3.1
23	MAR	1982	2000	82.833336	84.066917	23.055376	1.1	-1.2
23	MAR	1982	2100	82.875000	84.067322	23.050953	1.3	-2.1
23	MAR	1982	2140	82.902779	84.067566	23.044847	1.0	-3.8
23	MAR	1982	2200	82.916664	84.067657	23.040440	0.7	-4.6
23	MAR	1982	2300	82.958336	84.067795	23.023844	0.1	-5.4
23	MAR	1982	2326	82.976387	84.067795	23.016863	-0.1	-4.9
24	MAR	1982	0	83.000000	84.067757	23.008871	-0.3	-4.1
24	MAR	1982	100	83.041664	84.067703	22.996738	0.0	-4.0
24	MAR	1982	112	83.049995	84.067711	22.994205	0.2	-4.1
24	MAR	1982	200	83.083336	84.067802	22.982958	0.5	-4.8
24	MAR	1982	259	83.124306	84.067986	22.966969	0.6	-5.5
24	MAR	1982	300	83.125000	84.067993	22.966681	0.6	-5.5
24	MAR	1982	400	83.166664	84.068161	22.947956	0.5	-6.7
24	MAR	1982	408	83.172218	84.068184	22.945114	0.5	-6.9
24	MAR	1982	445	83.197914	84.068253	22.930649	0.0	-8.0
24	MAR	1982	500	83.208336	84.068237	22.924206	-0.4	-8.4
24	MAR	1982	557	83.247917	84.068024	22.897007	-0.5	-9.8
24	MAR	1982	600	83.250000	84.068016	22.895472	-0.4	-9.8
24	MAR	1982	700	83.291664	84.068108	22.863686	1.1	-10.2
24	MAR	1982	745	83.322914	84.068481	22.840591	1.9	-9.4
24	MAR	1982	800	83.333336	84.068649	22.833374	2.1	-9.0
24	MAR	1982	900	83.375000	84.069321	22.807177	1.9	-7.8
24	MAR	1982	1000	83.416664	84.069771	22.783623	0.8	-7.5
24	MAR	1982	1100	83.458336	84.069832	22.758738	-0.3	-8.6
24	MAR	1982	1147	83.490974	84.069679	22.735903	-0.7	-10.0
24	MAR	1982	1200	83.500000	84.069626	22.728958	-0.8	-10.4
24	MAR	1982	1300	83.541664	84.069473	22.694075	0.1	-11.6
24	MAR	1982	1332	83.563889	84.069565	22.674534	1.0	-11.7
24	MAR	1982	1400	83.583336	84.069763	22.657331	1.6	-11.8
24	MAR	1982	1500	83.625000	84.070473	22.620518	2.6	-11.7
24	MAR	1982	1500	83.625000	84.070473	22.620518	2.6	-11.7
24	MAR	1982	1516	83.636116	84.070709	22.610716	2.9	-11.7
24	MAR	1982	1600	83.666664	84.071465	22.583652	3.4	-11.9
24	MAR	1982	1650	83.701393	84.072342	22.551966	2.8	-12.4
24	MAR	1982	1700	83.708336	84.072487	22.545425	2.4	-12.6
24	MAR	1982	1800	83.750000	84.072884	22.504971	0.0	-13.1
24	MAR	1982	1840	83.777779	84.072685	22.477757	-1.7	-12.9
24	MAR	1982	1900	83.791664	84.072456	22.464336	-2.4	-12.7
24	MAR	1982	2000	83.833336	84.071396	22.425283	-3.9	-12.1
24	MAR	1982	2030	83.854164	84.070732	22.406517	-4.2	-11.8
24	MAR	1982	2100	83.875000	84.070023	22.388233	-4.5	-11.5
24	MAR	1982	2200	83.916664	84.068527	22.352716	-4.7	-11.2
24	MAR	1982	2300	83.958336	84.066986	22.317516	-4.8	-11.3
25	MAR	1982	0	84.000000	84.065376	22.281382	-5.1	-11.8
25	MAR	1982	100	84.041664	84.063622	22.243517	-5.8	-12.4
25	MAR	1982	150	84.076393	84.061981	22.210619	-6.4	-12.8
25	MAR	1982	200	84.083336	84.061630	22.203932	-6.5	-12.8
25	MAR	1982	300	84.125000	84.059395	22.163639	-7.2	-12.8
25	MAR	1982	400	84.166664	84.056992	22.125013	-7.5	-11.8
25	MAR	1982	500	84.208336	84.054573	22.091055	-7.3	-9.8
25	MAR	1982	600	84.250000	84.052299	22.064421	-6.6	-7.2
25	MAR	1982	700	84.291664	84.050331	22.046518	-5.5	-4.3
25	MAR	1982	800	84.333336	84.048737	22.036617	-4.3	-2.2
25	MAR	1982	900	84.375000	84.047470	22.030954	-3.5	-1.8
25	MAR	1982	910	84.381943	84.047287	22.029961	-3.4	-2.0

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
26	MAR	1982	2300	85.958336	84.003044	21.627939	2.0	-5.0
27	MAR	1982	0	86.000000	84.003288	21.613661	-0.7	-4.2
27	MAR	1982	100	86.041664	84.002541	21.601566	-4.0	-3.6
27	MAR	1982	200	86.083336	84.000656	21.591461	-7.6	-3.0
27	MAR	1982	300	86.125000	83.997658	21.583172	-10.9	-2.4
27	MAR	1982	400	86.166664	83.993629	21.576485	-13.8	-1.9
27	MAR	1982	500	86.208336	83.988754	21.571157	-16.1	-1.5
27	MAR	1982	500	86.208336	83.988754	21.571157	-16.1	-1.5
27	MAR	1982	600	86.250000	83.983215	21.566874	-17.9	-1.3
27	MAR	1982	700	86.291664	83.977196	21.563246	-19.1	-1.1
27	MAR	1982	800	86.333336	83.970871	21.559835	-19.8	-1.1
27	MAR	1982	900	86.375000	83.964394	21.556150	-20.1	-1.3
27	MAR	1982	1000	86.416664	83.957901	21.551682	-19.9	-1.6
27	MAR	1982	1100	86.458336	83.951515	21.545921	-19.4	-2.1
27	MAR	1982	1200	86.500000	83.945343	21.538368	-18.6	-2.8
27	MAR	1982	1300	86.541664	83.939476	21.528570	-17.5	-3.6
27	MAR	1982	1400	86.583336	83.933990	21.516129	-16.3	-4.5
27	MAR	1982	1500	86.625000	83.928932	21.500713	-14.9	-5.5
27	MAR	1982	1600	86.666664	83.924339	21.482090	-13.4	-6.6
27	MAR	1982	1700	86.708336	83.920242	21.460144	-11.9	-7.7
27	MAR	1982	1800	86.750000	83.916626	21.434883	-10.4	-8.8
27	MAR	1982	1900	86.791664	83.913490	21.406466	-9.0	-9.8
27	MAR	1982	2000	86.833336	83.910782	21.375237	-7.7	-10.6
27	MAR	1982	2100	86.875000	83.908455	21.341711	-6.7	-11.3
27	MAR	1982	2200	86.916664	83.906433	21.306633	-5.8	-11.7
27	MAR	1982	2300	86.958336	83.904633	21.270967	-5.3	-11.7
28	MAR	1982	0	87.000000	83.902924	21.235933	-5.2	-11.2
28	MAR	1982	100	87.041664	83.901192	21.203022	-5.5	-10.3
28	MAR	1982	200	87.083336	83.899269	21.174019	-6.4	-8.7
28	MAR	1982	237	87.109032	83.897926	21.158936	-7.1	-7.4
28	MAR	1982	300	87.125000	83.897018	21.150845	-7.6	-6.5
28	MAR	1982	342	87.154167	83.895172	21.138834	-8.6	-4.8
28	MAR	1982	400	87.166664	83.894310	21.134832	-9.1	-4.0
28	MAR	1982	500	87.208336	83.891121	21.126007	-10.5	-2.0
28	MAR	1982	600	87.250000	83.887566	21.121511	-11.3	-1.2
28	MAR	1982	614	87.259727	83.886703	21.120621	-11.4	-1.3
28	MAR	1982	700	87.291664	83.883865	21.117323	-11.4	-1.7
28	MAR	1982	800	87.333336	83.880241	21.110565	-10.8	-2.9
28	MAR	1982	900	87.375000	83.876907	21.099033	-9.6	-4.7
28	MAR	1982	1000	87.416664	83.874039	21.081982	-8.1	-6.5
28	MAR	1982	1100	87.458336	83.871628	21.060318	-6.8	-7.7
28	MAR	1982	1200	87.500000	83.869514	21.036671	-6.4	-7.7
28	MAR	1982	1244	87.530556	83.867928	21.020403	-7.0	-6.8
28	MAR	1982	1300	87.541664	83.867302	21.015087	-7.4	-6.3
28	MAR	1982	1302	87.543060	83.867218	21.014450	-7.4	-6.3
28	MAR	1982	1400	87.583336	83.864738	20.998503	-8.1	-4.7
28	MAR	1982	1430	87.604164	83.863441	20.991844	-7.9	-4.1
28	MAR	1982	1500	87.625000	83.862206	20.985882	-7.2	-3.8
28	MAR	1982	1559	87.665977	83.860130	20.975056	-5.8	-3.6
28	MAR	1982	1600	87.666664	83.860100	20.974873	-5.8	-3.6
28	MAR	1982	1616	87.677773	83.859604	20.971916	-5.5	-3.7
28	MAR	1982	1700	87.708336	83.858337	20.963543	-5.4	-3.8
28	MAR	1982	1708	87.713890	83.858101	20.961998	-5.5	-3.8
28	MAR	1982	1800	87.750000	83.856499	20.951296	-5.9	-4.5
28	MAR	1982	1802	87.751396	83.856438	20.950832	-5.9	-4.6
28	MAR	1982	1858	87.790276	83.854652	20.936096	-5.8	-5.7
28	MAR	1982	1900	87.791664	83.854591	20.935516	-5.7	-5.7
28	MAR	1982	2000	87.833336	83.852844	20.917038	-4.9	-6.4
28	MAR	1982	2047	87.865974	83.851715	20.901091	-3.9	-7.1
28	MAR	1982	2100	87.875000	83.851456	20.896397	-3.6	-7.3
28	MAR	1982	2200	87.916664	83.850555	20.872944	-1.9	-8.2
28	MAR	1982	2300	87.958336	83.850197	20.847105	-0.4	-8.7
28	MAR	1982	2300	87.958336	83.850197	20.847105	-0.4	-8.7
29	MAR	1982	0	88.000000	83.850159	20.821791	-0.1	-7.8
29	MAR	1982	47	88.032646	83.850044	20.805315	-0.8	-6.1
29	MAR	1982	100	88.041664	83.849983	20.801510	-1.1	-5.5
29	MAR	1982	110	88.048615	83.849915	20.798813	-1.3	-5.1
29	MAR	1982	200	88.083336	83.849464	20.787407	-2.1	-4.3

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
29	MAR	1982	233	88.106255	83.849045	20.779978	-2.6	-4.7
29	MAR	1982	258	88.123604	83.848671	20.773680	-2.9	-5.3
29	MAR	1982	300	88.125000	83.848640	20.773146	-2.9	-5.3
29	MAR	1982	400	88.166664	83.847763	20.756044	-1.9	-5.7
29	MAR	1982	403	88.168755	83.847733	20.755182	-1.8	-5.7
29	MAR	1982	500	88.208336	83.847534	20.739258	0.4	-5.5
29	MAR	1982	551	88.243752	83.847786	20.724442	1.1	-6.4
29	MAR	1982	600	88.250000	83.847839	20.721491	1.1	-6.7
29	MAR	1982	606	88.254173	83.847878	20.719442	1.1	-6.9
29	MAR	1982	700	88.291664	83.848213	20.698174	1.4	-8.7
29	MAR	1982	739	88.318748	83.848579	20.680073	2.0	-9.6
29	MAR	1982	800	88.333336	83.848824	20.669716	2.3	-9.9
29	MAR	1982	836	88.358337	83.849281	20.651239	2.3	-10.4
29	MAR	1982	900	88.375000	83.849579	20.638575	2.3	-10.5
29	MAR	1982	928	88.394440	83.849953	20.623762	2.8	-10.4
29	MAR	1982	1000	88.416664	83.850540	20.607403	4.1	-9.8
29	MAR	1982	1100	88.458336	83.852333	20.580431	6.7	-7.9
29	MAR	1982	1152	88.494446	83.854324	20.561331	7.0	-7.0
29	MAR	1982	1200	88.500000	83.854622	20.558500	6.8	-7.0
29	MAR	1982	1212	88.508331	83.855049	20.554226	6.4	-7.1
29	MAR	1982	1300	88.541664	83.856483	20.536066	4.4	-8.1
29	MAR	1982	1400	88.583336	83.857498	20.509434	2.1	-9.2
29	MAR	1982	1455	88.621529	83.858063	20.484629	2.2	-8.3
29	MAR	1982	1500	88.625000	83.858131	20.482571	2.4	-8.1
29	MAR	1982	1524	88.641663	83.858482	20.473358	3.2	-7.1
29	MAR	1982	1600	88.666664	83.859245	20.461765	4.6	-5.7
29	MAR	1982	1636	88.691673	83.860268	20.452524	5.9	-4.6
29	MAR	1982	1700	88.708336	83.861076	20.447336	6.6	-4.0
29	MAR	1982	1710	88.715279	83.861435	20.445360	6.8	-3.8
29	MAR	1982	1800	88.750000	83.863396	20.436512	7.4	-3.4
29	MAR	1982	1900	88.791664	83.865616	20.424814	5.8	-4.7
29	MAR	1982	2000	88.833336	83.867027	20.407084	3.0	-7.1
29	MAR	1982	2024	88.849998	83.867355	20.397959	2.0	-8.0
29	MAR	1982	2024	88.849998	83.867355	20.397959	2.0	-8.0
29	MAR	1982	2100	88.875000	83.867683	20.382595	1.6	-8.8
29	MAR	1982	2107	88.879860	83.867744	20.379477	1.7	-8.8
29	MAR	1982	2152	88.911110	83.868210	20.359486	2.2	-8.5
29	MAR	1982	2200	88.916664	83.868309	20.356094	2.3	-8.3
29	MAR	1982	2300	88.958336	83.869179	20.333046	2.9	-7.0
29	MAR	1982	2338	88.984718	83.869781	20.320215	2.9	-6.5
30	MAR	1982	0	89.000000	83.870125	20.313089	2.8	-6.4
30	MAR	1982	17	89.011810	83.870377	20.307640	2.7	-6.3
30	MAR	1982	100	89.041664	83.870934	20.293966	2.1	-6.3
30	MAR	1982	200	89.083336	83.871429	20.275244	1.0	-5.9
30	MAR	1982	300	89.125000	83.871605	20.258522	0.2	-5.0
30	MAR	1982	310	89.131950	83.871613	20.256052	0.2	-4.8
30	MAR	1982	400	89.166664	83.871628	20.245100	0.0	-4.0
30	MAR	1982	500	89.208336	83.871674	20.233501	0.3	-3.9
30	MAR	1982	528	89.227776	83.871735	20.227749	0.5	-4.2
30	MAR	1982	600	89.250000	83.871834	20.220474	0.6	-4.8
30	MAR	1982	700	89.291664	83.872032	20.204500	0.5	-5.8
30	MAR	1982	716	89.302773	83.872070	20.199751	0.4	-6.0
30	MAR	1982	800	89.333336	83.872154	20.185867	0.4	-6.4
30	MAR	1982	900	89.375000	83.872467	20.166578	1.7	-6.2
30	MAR	1982	905	89.378471	83.872520	20.165033	1.9	-6.1
30	MAR	1982	1000	89.416664	83.873344	20.148811	3.5	-5.6
30	MAR	1982	1100	89.458336	83.874603	20.131521	3.9	-5.9
30	MAR	1982	1200	89.500000	83.875694	20.111959	2.7	-7.0
30	MAR	1982	1300	89.541664	83.876350	20.089752	1.7	-7.3
30	MAR	1982	1310	89.548615	83.876434	20.086075	1.6	-7.2
30	MAR	1982	1343	89.571526	83.876755	20.074581	2.0	-6.4
30	MAR	1982	1400	89.583336	83.876953	20.069288	2.4	-5.8
30	MAR	1982	1432	89.605560	83.877411	20.060816	2.8	-4.6
30	MAR	1982	1457	89.622917	83.877792	20.055548	2.7	-3.7
30	MAR	1982	1500	89.625000	83.877831	20.054987	2.7	-3.7
30	MAR	1982	1600	89.666664	83.878510	20.045601	1.1	-2.9
30	MAR	1982	1700	89.708336	83.878517	20.036236	-0.9	-3.4
30	MAR	1982	1800	89.750000	83.878082	20.024889	-1.5	-4.0

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
30	MAR	1982	1804	89.752777	83.878052	20.024065	-1.4	-4.1
30	MAR	1982	1900	89.791664	83.877701	20.011925	-0.8	-4.4
30	MAR	1982	2000	89.833336	83.877609	19.998314	0.1	-4.5
30	MAR	1982	2100	89.875000	83.877754	19.984966	0.6	-4.3
30	MAR	1982	2200	89.916664	83.877953	19.972359	0.5	-4.0
30	MAR	1982	2300	89.958336	83.878059	19.960289	0.2	-4.0
30	MAR	1982	2324	89.974998	83.878075	19.955425	0.1	-4.0
31	MAR	1982	0	90.000000	83.878090	19.947889	0.1	-4.2
31	MAR	1982	15	90.010414	83.878105	19.944618	0.2	-4.4
31	MAR	1982	100	90.041664	83.878189	19.934322	0.4	-4.7
31	MAR	1982	112	90.049995	83.878220	19.931477	0.5	-4.7
31	MAR	1982	200	90.083336	83.878349	19.919807	0.5	-4.9
31	MAR	1982	259	90.124306	83.878448	19.905603	0.1	-4.5
31	MAR	1982	300	90.125000	83.878456	19.905375	0.1	-4.5
31	MAR	1982	317	90.136810	83.878456	19.901609	0.0	-4.2
31	MAR	1982	348	90.158333	83.878441	19.895414	-0.2	-3.6
31	MAR	1982	400	90.166664	83.878426	19.893320	-0.3	-3.3
31	MAR	1982	500	90.208336	83.878281	19.885410	-0.4	-2.0
31	MAR	1982	506	90.212502	83.878265	19.884819	-0.4	-1.9
31	MAR	1982	534	90.231941	83.878220	19.882381	-0.3	-1.6
31	MAR	1982	600	90.250000	83.878166	19.880369	-0.5	-1.5
31	MAR	1982	634	90.273613	83.878044	19.877495	-0.8	-1.9
31	MAR	1982	700	90.291664	83.877907	19.874674	-1.1	-2.4
31	MAR	1982	800	90.333336	83.877510	19.865677	-1.3	-3.4
31	MAR	1982	842	90.362495	83.877243	19.857899	-1.0	-3.9
31	MAR	1982	900	90.375000	83.877159	19.854290	-0.8	-4.1
31	MAR	1982	1000	90.416664	83.877113	19.840332	0.8	-5.4
31	MAR	1982	1050	90.451385	83.877571	19.824596	2.7	-7.1
31	MAR	1982	1100	90.458336	83.877731	19.820934	3.0	-7.4
31	MAR	1982	1154	90.495827	83.878822	19.799158	4.2	-8.2
31	MAR	1982	1200	90.500000	83.878952	19.796654	4.2	-8.2
31	MAR	1982	1300	90.541664	83.880295	19.771683	3.8	-8.2
31	MAR	1982	1340	90.569450	83.881035	19.754965	2.9	-8.3
31	MAR	1982	1400	90.583336	83.881317	19.746632	2.3	-8.2
31	MAR	1982	1409	90.589577	83.881424	19.742912	2.1	-8.1
31	MAR	1982	1500	90.625000	83.881790	19.722664	0.7	-7.4
31	MAR	1982	1526	90.643059	83.881851	19.713373	0.2	-6.7
31	MAR	1982	1600	90.666664	83.881836	19.702475	-0.3	-5.9
31	MAR	1982	1700	90.708336	83.881660	19.685564	-0.7	-5.4
31	MAR	1982	1712	90.716667	83.881615	19.682247	-0.7	-5.5
31	MAR	1982	1800	90.750000	83.881409	19.668495	-0.8	-5.9
31	MAR	1982	1900	90.791664	83.881119	19.649319	-0.9	-6.7
31	MAR	1982	2000	90.833336	83.880829	19.627813	-0.9	-7.4
31	MAR	1982	2100	90.875000	83.880539	19.605127	-0.9	-7.5
31	MAR	1982	2200	90.916664	83.880241	19.582842	-0.9	-7.1
31	MAR	1982	2231	90.938194	83.880081	19.571863	-1.0	-6.9
31	MAR	1982	2300	90.958336	83.879921	19.561964	-1.0	-6.6
1	APR	1982	0	91.000000	83.879555	19.542265	-1.2	-6.4
1	APR	1982	19	91.013191	83.879425	19.536089	-1.3	-6.4
1	APR	1982	100	91.041664	83.879097	19.522762	-1.6	-6.4
1	APR	1982	200	91.083336	83.878471	19.503721	-2.4	-6.1
1	APR	1982	206	91.087502	83.878387	19.501892	-2.5	-6.0
1	APR	1982	300	91.125000	83.877502	19.486320	-3.7	-5.4
1	APR	1982	354	91.162498	83.876274	19.472500	-4.5	-4.7
1	APR	1982	400	91.166664	83.876129	19.471075	-4.5	-4.7
1	APR	1982	443	91.196526	83.875137	19.461483	-3.8	-4.2
1	APR	1982	500	91.208336	83.874817	19.457947	-3.2	-4.0
1	APR	1982	541	91.236809	83.874207	19.449711	-2.5	-4.0
1	APR	1982	600	91.250000	83.873940	19.445831	-2.6	-4.1
1	APR	1982	700	91.291664	83.873024	19.433031	-3.2	-4.3
1	APR	1982	800	91.333336	83.871857	19.420471	-3.8	-3.9
1	APR	1982	819	91.346527	83.871460	19.416866	-3.8	-3.6
1	APR	1982	900	91.375000	83.870636	19.409843	-3.7	-3.2
1	APR	1982	1000	91.416664	83.869499	19.400265	-3.3	-3.3
1	APR	1982	1100	91.458336	83.868477	19.388626	-3.1	-4.4
1	APR	1982	1101	91.459023	83.868462	19.388405	-3.0	-4.5
1	APR	1982	1200	91.500000	83.867508	19.373600	-2.9	-5.3
1	APR	1982	1300	91.541664	83.866608	19.357895	-2.7	-4.8

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
1	APR	1982	1400	91.583336	83.865730	19.345652	-2.8	-3.2
1	APR	1982	1433	91.606255	83.865219	19.341066	-3.0	-2.3
1	APR	1982	1500	91.625000	83.864754	19.338240	-3.3	-1.9
1	APR	1982	1536	91.650002	83.864059	19.335110	-3.8	-1.7
1	APR	1982	1600	91.666664	83.863541	19.333052	-4.1	-1.7
1	APR	1982	1619	91.679863	83.863113	19.331385	-4.2	-1.8
1	APR	1982	1641	91.695137	83.862617	19.329422	-4.2	-1.8
1	APR	1982	1700	91.708336	83.862190	19.327728	-4.1	-1.8
1	APR	1982	1725	91.725700	83.861633	19.325485	-4.1	-1.8
1	APR	1982	1800	91.750000	83.860832	19.322210	-4.4	-1.9
1	APR	1982	1805	91.753471	83.860710	19.321716	-4.4	-2.0
1	APR	1982	1841	91.778473	83.859810	19.317982	-4.8	-2.1
1	APR	1982	1900	91.791664	83.859314	19.315990	-4.9	-2.1
1	APR	1982	1915	91.802086	83.858910	19.314451	-4.9	-2.0
1	APR	1982	2000	91.833336	83.857742	19.309889	-4.5	-2.1
1	APR	1982	2100	91.875000	83.856499	19.302668	-3.2	-2.8
1	APR	1982	2105	91.878471	83.856407	19.301950	-3.1	-2.9
1	APR	1982	2158	91.915276	83.855621	19.293699	-2.7	-3.0
1	APR	1982	2200	91.916664	83.855591	19.293398	-2.7	-3.0
1	APR	1982	2300	91.958336	83.854652	19.285429	-3.2	-2.4
1	APR	1982	2326	91.976387	83.854195	19.282248	-3.4	-2.4
2	APR	1982	0	92.000000	83.853539	19.277927	-3.7	-2.6
2	APR	1982	100	92.041664	83.852287	19.269388	-4.0	-3.0
2	APR	1982	200	92.083336	83.850937	19.260368	-4.3	-2.9
2	APR	1982	300	92.125000	83.849541	19.252594	-4.2	-2.2
2	APR	1982	301	92.125694	83.849518	19.252481	-4.2	-2.2
2	APR	1982	316	92.136108	83.849182	19.250862	-4.2	-2.1
2	APR	1982	400	92.166664	83.848228	19.246674	-3.7	-1.8
2	APR	1982	420	92.180550	83.847847	19.244844	-3.4	-1.8
2	APR	1982	448	92.200005	83.847366	19.242180	-3.0	-2.0
2	APR	1982	500	92.208336	83.847176	19.240967	-2.9	-2.0
2	APR	1982	600	92.250000	83.846298	19.234348	-2.8	-2.3
2	APR	1982	700	92.291664	83.845306	19.227697	-3.4	-2.0
2	APR	1982	704	92.294441	83.845230	19.227297	-3.4	-2.0
2	APR	1982	800	92.333336	83.844086	19.222561	-4.1	-1.4
2	APR	1982	852	92.369446	83.842880	19.219257	-4.4	-1.2
2	APR	1982	900	92.375000	83.842690	19.218771	-4.5	-1.2
2	APR	1982	1000	92.416664	83.841255	19.214594	-4.3	-1.7
2	APR	1982	1009	92.422913	83.841049	19.213808	-4.2	-1.8
2	APR	1982	1039	92.443748	83.840385	19.210836	-4.0	-2.1
2	APR	1982	1100	92.458336	83.839943	19.208515	-3.8	-2.3
2	APR	1982	1155	92.496529	83.838860	19.201899	-3.5	-2.5
2	APR	1982	1200	92.500000	83.838760	19.201279	-3.5	-2.5
2	APR	1982	1300	92.541664	83.837646	19.193388	-3.4	-2.8
2	APR	1982	1341	92.570137	83.836899	19.187246	-3.4	-3.1
2	APR	1982	1400	92.583336	83.836548	19.184258	-3.4	-3.2
2	APR	1982	1415	92.593750	83.836266	19.181875	-3.5	-3.2
2	APR	1982	1500	92.625000	83.835373	19.175121	-3.9	-2.7
2	APR	1982	1512	92.633331	83.835121	19.173584	-4.1	-2.4
2	APR	1982	1527	92.643745	83.834778	19.171865	-4.3	-2.1
2	APR	1982	1600	92.666664	83.833977	19.168837	-4.7	-1.6
2	APR	1982	1700	92.708336	83.832336	19.164406	-5.4	-1.7
2	APR	1982	1702	92.709724	83.832283	19.164234	-5.4	-1.7
2	APR	1982	1800	92.750000	83.830528	19.157967	-5.7	-2.6
2	APR	1982	1900	92.791664	83.828720	19.149817	-5.4	-2.6
2	APR	1982	2000	92.833336	83.827095	19.143490	-4.6	-1.4
2	APR	1982	2042	92.862495	83.826111	19.141520	-4.0	-0.5
2	APR	1982	2100	92.875000	83.825729	19.141239	-3.8	-0.2
2	APR	1982	2122	92.890282	83.825287	19.141226	-3.6	0.1
2	APR	1982	2200	92.916664	83.824577	19.141598	-3.4	0.2
2	APR	1982	2300	92.958336	83.823479	19.141029	-3.5	-0.8
3	APR	1982	0	93.000000	83.822281	19.136379	-3.9	-2.4
3	APR	1982	100	93.041664	83.820908	19.126947	-4.5	-3.8
3	APR	1982	200	93.083336	83.819359	19.113989	-5.0	-4.7
3	APR	1982	240	93.111115	83.818253	19.104406	-5.2	-4.9
3	APR	1982	300	93.125000	83.817688	19.099529	-5.3	-4.9
3	APR	1982	400	93.166664	83.815948	19.085005	-5.3	-4.7
3	APR	1982	500	93.208336	83.814247	19.071590	-5.1	-4.2

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
3	APR	1982	600	93.250000	83.812675	19.059950	-4.6	-3.6
3	APR	1982	700	93.291664	83.811295	19.050169	-4.0	-3.0
3	APR	1982	800	93.333336	83.810089	19.041861	-3.5	-2.6
3	APR	1982	802	93.334724	83.810051	19.041601	-3.5	-2.6
3	APR	1982	900	93.375000	83.808968	19.034323	-3.5	-2.5
3	APR	1982	1000	93.416664	83.807777	19.026659	-4.0	-2.7
3	APR	1982	1100	93.458336	83.806320	19.017887	-5.0	-3.2
3	APR	1982	1200	93.500000	83.804520	19.007120	-6.1	-4.0
3	APR	1982	1300	93.541664	83.802452	18.993710	-6.5	-5.0
3	APR	1982	1325	93.559029	83.801582	18.987267	-6.3	-5.4
3	APR	1982	1400	93.583336	83.800430	18.977409	-5.8	-5.9
3	APR	1982	1425	93.600700	83.799675	18.969864	-5.3	-6.2
3	APR	1982	1449	93.617363	83.799019	18.962416	-4.9	-6.2
3	APR	1982	1500	93.625000	83.798737	18.959002	-4.7	-6.2
3	APR	1982	1600	93.666664	83.797302	18.940878	-4.3	-5.8
3	APR	1982	1610	93.673615	83.797066	18.937986	-4.3	-5.7
3	APR	1982	1639	93.693748	83.796379	18.929882	-4.6	-5.5
3	APR	1982	1700	93.708336	83.795837	18.924263	-4.9	-5.3
3	APR	1982	1800	93.750000	83.794121	18.909006	-5.7	-5.1
3	APR	1982	1829	93.770142	83.793198	18.901606	-6.0	-5.2
3	APR	1982	1900	93.791664	83.792175	18.893482	-6.2	-5.3
3	APR	1982	2000	93.833336	83.790222	18.877302	-5.7	-5.4
3	APR	1982	2019	93.846527	83.789658	18.872190	-5.3	-5.4
3	APR	1982	2034	93.856941	83.789238	18.868183	-5.0	-5.3
3	APR	1982	2100	93.875000	83.788567	18.861315	-4.5	-5.3
3	APR	1982	2200	93.916664	83.787262	18.846041	-3.6	-4.9
3	APR	1982	2300	93.958336	83.786194	18.832357	-3.2	-4.2
3	APR	1982	2312	93.966667	83.785980	18.829885	-3.2	-4.1
3	APR	1982	2327	93.977081	83.785721	18.826931	-3.2	-3.8
4	APR	1982	0	94.000000	83.785141	18.820908	-3.3	-3.5
4	APR	1982	58	94.040276	83.784088	18.810787	-3.4	-3.7
4	APR	1982	100	94.041664	83.784050	18.810415	-3.4	-3.8
4	APR	1982	115	94.052086	83.783775	18.807512	-3.3	-4.0
4	APR	1982	200	94.083336	83.782990	18.797787	-3.1	-4.6
4	APR	1982	244	94.113892	83.782249	18.787191	-3.1	-5.0
4	APR	1982	300	94.125000	83.781982	18.783188	-3.2	-5.1
4	APR	1982	302	94.126396	83.781944	18.782679	-3.2	-5.1
4	APR	1982	400	94.166664	83.780846	18.767424	-4.0	-5.6
4	APR	1982	431	94.188194	83.780128	18.758564	-4.5	-5.9
4	APR	1982	450	94.201385	83.779655	18.752865	-4.7	-6.1
4	APR	1982	500	94.208336	83.779404	18.749794	-4.7	-6.2
4	APR	1982	523	94.224304	83.778824	18.742567	-4.5	-6.4
4	APR	1982	600	94.250000	83.778023	18.730637	-3.4	-6.5
4	APR	1982	700	94.291664	83.777206	18.711452	-1.8	-6.2
4	APR	1982	711	94.299309	83.777100	18.708103	-1.6	-6.0
4	APR	1982	800	94.333336	83.776733	18.694422	-1.3	-5.0
4	APR	1982	859	94.374306	83.776260	18.681908	-1.8	-3.5
4	APR	1982	900	94.375000	83.776253	18.681734	-1.8	-3.5
4	APR	1982	1000	94.416664	83.775574	18.671913	-2.3	-3.6
4	APR	1982	1010	94.423615	83.775452	18.670057	-2.4	-3.9
4	APR	1982	1100	94.458336	83.774780	18.658934	-2.5	-5.0
4	APR	1982	1157	94.497917	83.774017	18.644106	-2.4	-5.2
4	APR	1982	1200	94.500000	83.773979	18.643332	-2.3	-5.2
4	APR	1982	1300	94.541664	83.773315	18.628319	-1.7	-5.1
4	APR	1982	1343	94.571526	83.772964	18.617043	-1.5	-5.5
4	APR	1982	1400	94.583336	83.772827	18.612274	-1.6	-5.7
4	APR	1982	1426	94.601387	83.772575	18.604675	-2.0	-6.0
4	APR	1982	1500	94.625000	83.772141	18.594454	-2.6	-6.1
4	APR	1982	1528	94.644440	83.771736	18.586100	-2.7	-5.9
4	APR	1982	1600	94.666664	83.771301	18.576834	-2.3	-5.7
4	APR	1982	1647	94.699310	83.770805	18.563847	-1.6	-5.5
4	APR	1982	1700	94.708336	83.770706	18.560331	-1.3	-5.4
4	APR	1982	1714	94.718056	83.770607	18.556564	-1.1	-5.4
4	APR	1982	1800	94.750000	83.770393	18.544180	-0.7	-5.5
4	APR	1982	1900	94.791664	83.770187	18.527548	-0.6	-5.7
4	APR	1982	2000	94.833336	83.769943	18.510647	-0.9	-5.6
4	APR	1982	2100	94.875000	83.769608	18.494642	-1.1	-5.1
4	APR	1982	2200	94.916664	83.769218	18.480677	-1.2	-4.3

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
4	APR	1982	2203	94.918755	83.769203	18.480040	-1.2	-4.2
4	APR	1982	2300	94.958336	83.768875	18.468847	-0.9	-3.7
5	APR	1982	0	95.000000	83.768631	18.457644	-0.7	-3.9
5	APR	1982	22	95.015282	83.768547	18.453194	-0.7	-4.2
5	APR	1982	100	95.041664	83.768387	18.444696	-1.0	-4.8
5	APR	1982	200	95.083336	83.767952	18.428518	-1.7	-6.0
5	APR	1982	210	95.090279	83.767860	18.425455	-1.7	-6.3
5	APR	1982	300	95.125000	83.767464	18.408781	-0.7	-7.1
5	APR	1982	312	95.133331	83.767441	18.404539	-0.1	-7.2
5	APR	1982	357	95.164581	83.767670	18.388031	1.8	-7.6
5	APR	1982	400	95.166664	83.767700	18.386896	1.9	-7.6
5	APR	1982	500	95.208336	83.768578	18.362995	3.2	-8.6
5	APR	1982	500	95.208336	83.768578	18.362995	3.2	-8.6
5	APR	1982	544	95.238892	83.769356	18.342646	3.2	-10.3
5	APR	1982	600	95.250000	83.769630	18.334135	3.1	-11.1
5	APR	1982	648	95.283333	83.770576	18.306047	5.0	-11.8
5	APR	1982	700	95.291664	83.770935	18.299055	6.0	-11.6
5	APR	1982	800	95.333336	83.773506	18.266283	9.0	-10.5
5	APR	1982	809	95.339577	83.773949	18.261623	9.1	-10.4
5	APR	1982	900	95.375000	83.776428	18.236158	8.6	-9.7
5	APR	1982	957	95.414581	83.778870	18.209713	7.3	-8.8
5	APR	1982	1000	95.416664	83.778984	18.208397	7.2	-8.8
5	APR	1982	1100	95.458336	83.781128	18.183172	6.0	-8.3
5	APR	1982	1104	95.461113	83.781258	18.181507	6.0	-8.4
5	APR	1982	1144	95.488892	83.782440	18.164343	4.9	-9.0
5	APR	1982	1200	95.500000	83.782837	18.156996	4.3	-9.4
5	APR	1982	1250	95.534721	83.783852	18.132055	3.7	-10.5
5	APR	1982	1300	95.541664	83.784058	18.126797	3.8	-10.6
5	APR	1982	1400	95.583336	83.785500	18.094107	5.2	-11.2
5	APR	1982	1436	95.608337	83.786598	18.073910	6.0	-11.3
5	APR	1982	1500	95.625000	83.787392	18.060255	6.3	-11.5
5	APR	1982	1539	95.652077	83.788712	18.037607	6.2	-11.9
5	APR	1982	1553	95.661804	83.789169	18.029263	6.0	-12.0
5	APR	1982	1600	95.666664	83.789398	18.025040	5.9	-12.1
5	APR	1982	1622	95.681946	83.790077	18.011532	5.6	-12.5
5	APR	1982	1700	95.708336	83.791199	17.987219	5.2	-13.2
5	APR	1982	1743	95.738190	83.792381	17.958225	5.0	-13.7
5	APR	1982	1800	95.750000	83.792839	17.946638	5.1	-13.6
5	APR	1982	1808	95.755554	83.793060	17.941221	5.1	-13.5
5	APR	1982	1900	95.791664	83.794495	17.907013	4.8	-12.7
5	APR	1982	1933	95.814583	83.795273	17.886421	3.8	-12.4
5	APR	1982	2000	95.833336	83.795753	17.869690	2.7	-12.5
5	APR	1982	2100	95.875000	83.796295	17.829849	1.1	-14.4
5	APR	1982	2122	95.890282	83.796425	17.813416	1.1	-15.5
5	APR	1982	2200	95.916664	83.796661	17.783125	1.3	-16.2
5	APR	1982	2240	95.944450	83.796959	17.751831	1.4	-14.8
5	APR	1982	2300	95.958336	83.797112	17.737669	1.3	-13.5
5	APR	1982	2329	95.978477	83.797279	17.719419	0.8	-11.7
6	APR	1982	0	96.000000	83.797356	17.702644	0.0	-10.1
6	APR	1982	26	96.018059	83.797302	17.690136	-0.8	-9.2
6	APR	1982	100	96.041664	83.797073	17.674982	-1.7	-8.7
6	APR	1982	116	96.052773	83.796913	17.668037	-2.1	-8.7
6	APR	1982	200	96.083336	83.796326	17.648479	-2.6	-9.4
6	APR	1982	249	96.117363	83.795616	17.622961	-2.8	-11.7
6	APR	1982	300	96.125000	83.795448	17.616377	-2.9	-12.3
6	APR	1982	304	96.127777	83.795387	17.613897	-2.9	-12.5
6	APR	1982	400	96.166664	83.794487	17.574800	-2.8	-15.2
6	APR	1982	437	96.192360	83.793991	17.545444	-1.9	-16.5
6	APR	1982	437	96.192360	83.793991	17.545444	-1.9	-16.5
6	APR	1982	500	96.208336	83.793816	17.526154	-0.9	-17.1
6	APR	1982	600	96.250000	83.793869	17.473148	1.0	-18.1
6	APR	1982	626	96.268059	83.794044	17.449535	1.5	-18.3
6	APR	1982	700	96.291664	83.794365	17.418436	1.9	-18.4
6	APR	1982	800	96.333336	83.795059	17.363691	2.4	-18.1
6	APR	1982	814	96.343056	83.795242	17.351080	2.5	-18.0
6	APR	1982	900	96.375000	83.795906	17.310339	2.8	-17.5
6	APR	1982	1000	96.416664	83.796898	17.258879	3.3	-16.9
6	APR	1982	1100	96.458336	83.798012	17.209032	3.6	-16.5

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
6	APR	1982	1200	96.500000	83.799187	17.159838	3.6	-16.4
6	APR	1982	1300	96.541664	83.800339	17.109896	3.5	-17.0
6	APR	1982	1340	96.569450	83.801071	17.075426	3.3	-17.6
6	APR	1982	1400	96.583336	83.801414	17.057713	3.2	-17.9
6	APR	1982	1500	96.625000	83.802383	17.002258	2.8	-19.1
6	APR	1982	1530	96.645836	83.802826	16.973061	2.6	-19.8
6	APR	1982	1600	96.666664	83.803246	16.942844	2.5	-20.5
6	APR	1982	1700	96.708336	83.803970	16.879971	2.0	-21.3
6	APR	1982	1800	96.750000	83.804520	16.815952	1.3	-21.2
6	APR	1982	1900	96.791664	83.804817	16.754025	0.5	-19.9
6	APR	1982	2000	96.833336	83.804810	16.697468	-0.5	-17.6
6	APR	1982	2100	96.875000	83.804466	16.648680	-1.5	-14.8
6	APR	1982	2200	96.916664	83.803833	16.608326	-2.3	-12.2
6	APR	1982	2236	96.941673	83.803352	16.587580	-2.6	-10.9
6	APR	1982	2300	96.958336	83.803001	16.574877	-2.8	-10.3
6	APR	1982	2318	96.970833	83.802727	16.565823	-2.9	-9.9
7	APR	1982	0	97.000000	83.802048	16.545877	-3.1	-9.2
7	APR	1982	24	97.016663	83.801636	16.534937	-3.3	-9.0
7	APR	1982	100	97.041664	83.800957	16.518919	-3.6	-8.8
7	APR	1982	104	97.044441	83.800880	16.517164	-3.7	-8.7
7	APR	1982	200	97.083336	83.799667	16.493248	-4.4	-8.3
7	APR	1982	211	97.090973	83.799408	16.488689	-4.5	-8.3
7	APR	1982	250	97.118050	83.798386	16.472828	-5.2	-8.1
7	APR	1982	300	97.125000	83.798103	16.468809	-5.3	-8.0
7	APR	1982	359	97.165977	83.796295	16.444044	-5.8	-9.2
7	APR	1982	400	97.166664	83.796265	16.443588	-5.8	-9.2
7	APR	1982	414	97.176392	83.795822	16.436920	-5.8	-9.8
7	APR	1982	500	97.208336	83.794418	16.412430	-5.3	-11.4
7	APR	1982	546	97.240273	83.793205	16.385740	-4.4	-11.6
7	APR	1982	600	97.250000	83.792885	16.377720	-4.0	-11.4
7	APR	1982	603	97.252083	83.792816	16.376020	-4.0	-11.3
7	APR	1982	700	97.291664	83.791779	16.345852	-2.9	-9.7
7	APR	1982	751	97.327087	83.790947	16.323301	-3.5	-8.0
7	APR	1982	800	97.333336	83.790771	16.319756	-3.8	-7.8
7	APR	1982	822	97.348610	83.790260	16.311592	-4.8	-7.1
7	APR	1982	900	97.375000	83.789085	16.299088	-6.7	-6.1
7	APR	1982	1000	97.416664	83.786583	16.281944	-8.2	-5.6
7	APR	1982	1100	97.458336	83.783989	16.264462	-7.5	-6.2
7	APR	1982	1106	97.462502	83.783752	16.262596	-7.3	-6.3
7	APR	1982	1152	97.494446	83.782005	16.247686	-7.0	-6.6
7	APR	1982	1200	97.500000	83.781700	16.245047	-7.1	-6.6
7	APR	1982	1252	97.536110	83.779617	16.228508	-7.8	-5.9
7	APR	1982	1300	97.541664	83.779282	16.226181	-7.9	-5.7
7	APR	1982	1317	97.553474	83.778534	16.221516	-8.2	-5.3
7	APR	1982	1340	97.569450	83.777489	16.215828	-8.6	-4.7
7	APR	1982	1400	97.583336	83.776543	16.211397	-8.8	-4.3
7	APR	1982	1438	97.609718	83.774704	16.203705	-9.0	-4.0
7	APR	1982	1500	97.625000	83.773628	16.199217	-9.1	-4.2
7	APR	1982	1507	97.629860	83.773277	16.197744	-9.1	-4.3
7	APR	1982	1600	97.666664	83.770683	16.185797	-8.8	-4.8
7	APR	1982	1624	97.683327	83.769569	16.179823	-8.4	-5.2
7	APR	1982	1700	97.708336	83.768021	16.170071	-7.6	-5.8
7	APR	1982	1800	97.750000	83.765717	16.150843	-6.9	-7.3
7	APR	1982	1810	97.756950	83.765350	16.147156	-6.9	-7.6
7	APR	1982	1900	97.791664	83.763481	16.126696	-7.0	-8.8
7	APR	1982	2000	97.833336	83.761131	16.099905	-7.4	-8.8
7	APR	1982	2100	97.875000	83.758690	16.076096	-7.6	-6.8
7	APR	1982	2200	97.916664	83.756226	16.060163	-7.7	-3.8
7	APR	1982	2209	97.922913	83.755859	16.058561	-7.7	-3.4
7	APR	1982	2300	97.958336	83.753677	16.052702	-8.2	-1.6
7	APR	1982	2331	97.979858	83.752258	16.050642	-8.7	-1.2
7	APR	1982	2355	97.996529	83.751106	16.049191	-9.1	-1.3
8	APR	1982	0	98.000000	83.750862	16.048874	-9.1	-1.3
8	APR	1982	100	98.041664	83.747810	16.044430	-9.5	-1.7
8	APR	1982	118	98.054169	83.746887	16.042835	-9.4	-1.9
8	APR	1982	141	98.070137	83.745728	16.040583	-9.2	-2.1
8	APR	1982	200	98.083336	83.744812	16.038477	-8.7	-2.4
8	APR	1982	204	98.086113	83.744621	16.038000	-8.6	-2.4

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
8	APR	1982	300	98.125000	83.742241	16.030655	-7.2	-2.6
8	APR	1982	306	98.129173	83.742012	16.029892	-7.1	-2.5
8	APR	1982	352	98.161110	83.740387	16.024551	-6.0	-2.2
8	APR	1982	400	98.166664	83.740128	16.023682	-5.8	-2.2
8	APR	1982	453	98.203468	83.738556	16.018040	-5.4	-2.2
8	APR	1982	500	98.208336	83.738350	16.017277	-5.5	-2.2
8	APR	1982	514	98.218056	83.737923	16.015726	-5.6	-2.3
8	APR	1982	540	98.236115	83.737114	16.012756	-5.9	-2.3
8	APR	1982	600	98.250000	83.736458	16.010429	-6.2	-2.4
8	APR	1982	700	98.291664	83.734283	16.003510	-7.1	-2.3
8	APR	1982	800	98.333336	83.731895	15.997038	-7.5	-2.1
8	APR	1982	900	98.375000	83.729485	15.990720	-7.2	-2.2
8	APR	1982	1000	98.416664	83.727234	15.984053	-6.6	-2.3
8	APR	1982	1014	98.426392	83.726738	15.982444	-6.5	-2.3
8	APR	1982	1100	98.458336	83.725151	15.977162	-6.4	-2.3
8	APR	1982	1200	98.500000	83.722992	15.971056	-7.0	-1.8
8	APR	1982	1200	98.500000	83.722992	15.971056	-7.0	-1.8
8	APR	1982	1300	98.541664	83.720657	15.966702	-7.1	-1.2
8	APR	1982	1346	98.573608	83.718964	15.964245	-6.3	-1.0
8	APR	1982	1400	98.583336	83.718498	15.963582	-6.0	-0.9
8	APR	1982	1500	98.625000	83.716736	15.961111	-5.0	-0.7
8	APR	1982	1532	98.647224	83.715881	15.960001	-4.9	-0.7
8	APR	1982	1600	98.666664	83.715134	15.959016	-4.9	-0.8
8	APR	1982	1700	98.708336	83.713539	15.955611	-4.9	-1.7
8	APR	1982	1718	98.720833	83.713074	15.953857	-4.8	-2.2
8	APR	1982	1800	98.750000	83.711983	15.948465	-4.7	-2.9
8	APR	1982	1824	98.766663	83.711380	15.945012	-4.6	-2.9
8	APR	1982	1900	98.791664	83.710487	15.939803	-4.5	-2.9
8	APR	1982	2000	98.833336	83.709076	15.931113	-4.2	-3.1
8	APR	1982	2013	98.842354	83.708786	15.929095	-4.1	-3.2
8	APR	1982	2100	98.875000	83.707787	15.921375	-3.9	-3.4
8	APR	1982	2200	98.916664	83.706512	15.912530	-4.1	-2.3
8	APR	1982	2238	98.943054	83.705620	15.909415	-4.6	-1.0
8	APR	1982	2300	98.958336	83.705048	15.908784	-4.9	-0.2
9	APR	1982	0	99.000000	83.703331	15.910447	-5.6	1.0
9	APR	1982	100	99.041664	83.701447	15.912692	-5.8	0.2
9	APR	1982	116	99.052773	83.700943	15.912697	-5.8	-0.2
9	APR	1982	200	99.083336	83.699615	15.910977	-5.3	-1.3
9	APR	1982	300	99.125000	83.698021	15.905867	-4.5	-1.9
9	APR	1982	329	99.145142	83.697350	15.903174	-4.1	-1.9
9	APR	1982	400	99.166664	83.696686	15.900352	-3.9	-1.9
9	APR	1982	400	99.166664	83.696686	15.900352	-3.9	-1.9
9	APR	1982	500	99.208336	83.695419	15.893887	-3.8	-2.7
9	APR	1982	517	99.220146	83.695076	15.891440	-3.7	-3.1
9	APR	1982	548	99.241669	83.694473	15.886183	-3.5	-3.7
9	APR	1982	600	99.250000	83.694252	15.883950	-3.3	-3.9
9	APR	1982	700	99.291664	83.693253	15.872155	-2.8	-3.9
9	APR	1982	705	99.295135	83.693176	15.871195	-2.8	-3.9
9	APR	1982	800	99.333336	83.692307	15.861163	-3.4	-3.7
9	APR	1982	824	99.349998	83.691818	15.856802	-4.1	-3.8
9	APR	1982	854	99.370827	83.691093	15.850966	-4.8	-4.2
9	APR	1982	900	99.375000	83.690933	15.849706	-5.0	-4.3
9	APR	1982	1000	99.416664	83.689072	15.835784	-6.7	-4.9
9	APR	1982	1012	99.424995	83.688629	15.832931	-7.1	-4.8
9	APR	1982	1100	99.458336	83.686592	15.822110	-8.5	-4.3
9	APR	1982	1200	99.500000	83.683792	15.811189	-8.4	-3.2
9	APR	1982	1200	99.500000	83.683792	15.811189	-8.4	-3.2
9	APR	1982	1300	99.541664	83.681305	15.803367	-6.8	-2.2
9	APR	1982	1347	99.574310	83.679726	15.798966	-5.8	-1.6
9	APR	1982	1400	99.583336	83.679321	15.797969	-5.7	-1.5
9	APR	1982	1421	99.597923	83.678688	15.796543	-5.5	-1.3
9	APR	1982	1440	99.611115	83.678123	15.795430	-5.4	-1.1
9	APR	1982	1500	99.625000	83.677544	15.794405	-5.4	-1.0
9	APR	1982	1600	99.666664	83.675819	15.791514	-5.2	-1.2
9	APR	1982	1610	99.673615	83.675537	15.790918	-5.2	-1.3
9	APR	1982	1626	99.684723	83.675095	15.789845	-5.1	-1.5
9	APR	1982	1700	99.708336	83.674171	15.787024	-4.9	-1.9
9	APR	1982	1800	99.750000	83.672699	15.780176	-4.2	-2.7

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
9	APR	1982	1800	99.750000	83.672699	15.780176	-4.2	-2.7
9	APR	1982	1900	99.791664	83.671364	15.771208	-4.2	-3.4
9	APR	1982	1950	99.826385	83.670143	15.762146	-4.9	-4.0
9	APR	1982	2000	99.833336	83.669876	15.760167	-5.1	-4.1
9	APR	1982	2100	99.875000	83.668045	15.747524	-6.1	-4.4
9	APR	1982	2200	99.916664	83.666039	15.735104	-6.1	-3.9
9	APR	1982	2240	99.944450	83.664757	15.728029	-5.6	-3.3
9	APR	1982	2300	99.958336	83.664162	15.724998	-5.3	-2.9
10	APR	1982	0	100.000000	83.662552	15.717757	-4.7	-2.1
10	APR	1982	26	100.018059	83.661896	15.715163	-4.7	-2.0
10	APR	1982	100	100.041664	83.661018	15.711888	-5.0	-2.0
10	APR	1982	200	100.083336	83.659172	15.704846	-6.6	-3.0
10	APR	1982	213	100.092354	83.658691	15.702872	-7.1	-3.3
10	APR	1982	256	100.122223	83.656929	15.695246	-7.8	-3.9
10	APR	1982	300	100.125000	83.656761	15.694489	-7.9	-3.9
10	APR	1982	400	100.166664	83.654358	15.683336	-6.7	-3.5
10	APR	1982	500	100.208336	83.652519	15.674208	-4.8	-2.7
10	APR	1982	600	100.250000	83.651100	15.667159	-4.3	-2.2
10	APR	1982	700	100.291664	83.649544	15.661325	-5.6	-1.8
10	APR	1982	734	100.315277	83.648399	15.658709	-6.9	-1.3
10	APR	1982	800	100.333336	83.647362	15.657299	-7.9	-0.8
10	APR	1982	900	100.375000	83.644531	15.656813	-9.3	0.5
10	APR	1982	921	100.389587	83.643471	15.657515	-9.4	0.8
10	APR	1982	1000	100.416664	83.641479	15.658718	-9.4	0.0
10	APR	1982	1015	100.427086	83.640724	15.658445	-9.3	-0.8
10	APR	1982	1100	100.458336	83.638496	15.654756	-9.2	-2.2
10	APR	1982	1109	100.464577	83.638046	15.653778	-9.2	-2.3
10	APR	1982	1144	100.488892	83.636307	15.650192	-9.2	-1.7
10	APR	1982	1200	100.500000	83.635513	15.649052	-9.1	-1.2
10	APR	1982	1257	100.539581	83.632751	15.648328	-8.7	0.5
10	APR	1982	1300	100.541664	83.632607	15.648410	-8.7	0.6
10	APR	1982	1328	100.561104	83.631302	15.649609	-8.6	1.1
10	APR	1982	1347	100.574310	83.630424	15.650713	-8.5	1.3
10	APR	1982	1400	100.583336	83.629829	15.651553	-8.5	1.4
10	APR	1982	1500	100.625000	83.627098	15.655829	-8.4	1.4
10	APR	1982	1533	100.647919	83.625610	15.657955	-8.3	1.2
10	APR	1982	1548	100.658333	83.624947	15.658787	-8.2	1.1
10	APR	1982	1600	100.666664	83.624420	15.659377	-8.1	1.0
10	APR	1982	1700	100.708336	83.621872	15.660887	-7.5	-0.1
10	APR	1982	1719	100.721527	83.621109	15.660627	-7.3	-0.5
10	APR	1982	1738	100.734718	83.620384	15.660006	-7.0	-0.8
10	APR	1982	1800	100.750000	83.619576	15.658966	-6.6	-1.1
10	APR	1982	1900	100.791664	83.617546	15.655525	-5.9	-1.1
10	APR	1982	1927	100.810417	83.616699	15.654186	-5.7	-0.9
10	APR	1982	2000	100.833336	83.615692	15.652838	-5.5	-0.8
10	APR	1982	2100	100.875000	83.613991	15.650790	-5.0	-0.7
10	APR	1982	2117	100.886810	83.613533	15.650252	-4.8	-0.6
10	APR	1982	2200	100.916664	83.612450	15.649222	-4.5	-0.2
10	APR	1982	2214	100.926392	83.612114	15.649144	-4.5	0.0
10	APR	1982	2240	100.944450	83.611481	15.649496	-4.4	0.6
10	APR	1982	2300	100.958336	83.611008	15.650297	-4.4	1.1
11	APR	1982	0	101.000000	83.609650	15.655847	-3.9	2.7
11	APR	1982	0	101.000000	83.609650	15.655847	-3.9	2.7
11	APR	1982	27	101.018745	83.609085	15.659739	-3.8	3.2
11	APR	1982	100	101.041664	83.608383	15.664864	-4.2	3.1
11	APR	1982	123	101.057640	83.607841	15.668194	-4.6	2.8
11	APR	1982	147	101.074310	83.607224	15.671358	-4.9	2.6
11	APR	1982	200	101.083336	83.606880	15.672978	-4.9	2.5
11	APR	1982	214	101.093056	83.606506	15.674675	-5.0	2.5
11	APR	1982	244	101.113892	83.605713	15.678087	-4.7	2.2
11	APR	1982	300	101.125000	83.605316	15.679731	-4.4	2.0
11	APR	1982	333	101.147919	83.604584	15.682734	-3.8	1.7
11	APR	1982	400	101.166664	83.604065	15.684887	-3.4	1.6
11	APR	1982	402	101.168060	83.604027	15.685039	-3.3	1.5
11	APR	1982	432	101.188896	83.603516	15.687173	-3.0	1.4
11	APR	1982	500	101.208336	83.603065	15.689012	-3.0	1.3
11	APR	1982	519	101.221527	83.602760	15.690245	-3.0	1.3
11	APR	1982	550	101.243050	83.602264	15.692249	-2.9	1.3

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
11	APR	1982	600	101.250000	83.602112	15.692873	-2.8	1.3
11	APR	1982	620	101.263885	83.601830	15.694051	-2.6	1.1
11	APR	1982	700	101.291664	83.601326	15.695871	-2.1	0.7
11	APR	1982	800	101.333336	83.600739	15.696935	-1.7	0.2
11	APR	1982	808	101.338890	83.600670	15.696986	-1.7	0.1
11	APR	1982	900	101.375000	83.600204	15.697258	-1.6	0.2
11	APR	1982	923	101.390968	83.600006	15.697483	-1.5	0.3
11	APR	1982	1000	101.416664	83.599716	15.698094	-1.4	0.4
11	APR	1982	1100	101.458336	83.599243	15.699710	-1.6	0.7
11	APR	1982	1109	101.464577	83.599167	15.700002	-1.7	0.7
11	APR	1982	1200	101.500000	83.598610	15.701881	-2.3	0.8
11	APR	1982	1255	101.538200	83.597839	15.704527	-2.9	1.2
11	APR	1982	1300	101.541664	83.597763	15.704815	-2.9	1.2
11	APR	1982	1335	101.565971	83.597191	15.707160	-3.1	1.5
11	APR	1982	1400	101.583336	83.596771	15.709120	-3.2	1.7
11	APR	1982	1441	101.611809	83.596077	15.712377	-3.0	1.5
11	APR	1982	1500	101.625000	83.595779	15.713641	-2.8	1.3
11	APR	1982	1524	101.641663	83.595428	15.714934	-2.6	1.0
11	APR	1982	1600	101.666664	83.594955	15.716298	-2.3	0.6
11	APR	1982	1627	101.685417	83.594635	15.716935	-2.1	0.4
11	APR	1982	1700	101.708336	83.594292	15.717378	-1.8	0.2
11	APR	1982	1714	101.718056	83.594162	15.717505	-1.7	0.2
11	APR	1982	1800	101.750000	83.593796	15.717743	-1.3	0.0
11	APR	1982	1813	101.759026	83.593712	15.717743	-1.2	0.0
11	APR	1982	1900	101.791664	83.593460	15.717516	-0.7	-0.2
11	APR	1982	1904	101.794441	83.593445	15.717484	-0.6	-0.2
11	APR	1982	2000	101.833336	83.593376	15.716626	0.2	-0.6
11	APR	1982	2054	101.870827	83.593491	15.714120	0.5	-1.3
11	APR	1982	2100	101.875000	83.593513	15.713731	0.5	-1.4
11	APR	1982	2147	101.907646	83.593605	15.710440	0.1	-1.3
11	APR	1982	2200	101.916664	83.593605	15.709682	-0.1	-1.1
11	APR	1982	2300	101.958336	83.593437	15.707802	-0.9	-0.2
11	APR	1982	2334	101.981941	83.593246	15.707681	-1.2	0.1
12	APR	1982	0	102.000000	83.593071	15.707858	-1.3	0.2
12	APR	1982	100	102.041664	83.592628	15.708847	-1.3	0.5
12	APR	1982	122	102.056946	83.592484	15.709398	-1.2	0.6
12	APR	1982	200	102.083336	83.592270	15.710595	-0.9	0.7
12	APR	1982	300	102.125000	83.592056	15.713070	-0.4	0.9
12	APR	1982	400	102.166664	83.591972	15.715829	-0.1	0.9
12	APR	1982	500	102.208336	83.591980	15.718069	0.1	0.6
12	APR	1982	600	102.250000	83.592003	15.718866	0.0	-0.1
12	APR	1982	700	102.291664	83.591957	15.717427	-0.3	-0.9
12	APR	1982	800	102.333336	83.591812	15.713392	-0.6	-1.8
12	APR	1982	900	102.375000	83.591568	15.707074	-0.8	-2.5
12	APR	1982	1000	102.416664	83.591354	15.699734	-0.4	-2.5
12	APR	1982	1017	102.428474	83.591324	15.697763	-0.2	-2.3
12	APR	1982	1100	102.458336	83.591347	15.693438	0.5	-1.8
12	APR	1982	1112	102.466667	83.591377	15.692473	0.7	-1.6
12	APR	1982	1200	102.500000	83.591637	15.689555	1.2	-1.1
12	APR	1982	1203	102.502083	83.591660	15.689402	1.2	-1.1
12	APR	1982	1300	102.541664	83.592003	15.685807	1.0	-1.8
12	APR	1982	1312	102.549995	83.592064	15.684644	0.9	-2.2
12	APR	1982	1349	102.575691	83.592216	15.680146	0.7	-2.7
12	APR	1982	1400	102.583336	83.592255	15.678734	0.7	-2.6
12	APR	1982	1500	102.625000	83.592445	15.672480	0.3	-1.3
12	APR	1982	1535	102.649300	83.592476	15.671318	0.0	-0.1
12	APR	1982	1600	102.666664	83.592461	15.671460	-0.1	0.3
12	APR	1982	1626	102.684723	83.592445	15.671907	-0.1	0.3
12	APR	1982	1651	102.702087	83.592453	15.672070	0.1	-0.1
12	APR	1982	1700	102.708336	83.592461	15.671985	0.2	-0.3
12	APR	1982	1721	102.722923	83.592491	15.671421	0.4	-0.8
12	APR	1982	1800	102.750000	83.592606	15.669208	0.7	-1.5
12	APR	1982	1841	102.778473	83.592781	15.665907	0.9	-1.8
12	APR	1982	1900	102.791664	83.592873	15.664273	1.0	-1.8
12	APR	1982	2000	102.833336	83.593216	15.658831	1.2	-2.0
12	APR	1982	2031	102.854858	83.593422	15.655538	1.3	-2.4
12	APR	1982	2100	102.875000	83.593628	15.651935	1.4	-2.8
12	APR	1982	2143	102.904854	83.593956	15.645596	1.4	-3.3

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
12	APR	1982	2200	102.916664	83.594078	15.642876	1.4	-3.3
12	APR	1982	2241	102.945137	83.594360	15.636409	1.1	-3.0
12	APR	1982	2300	102.958336	83.594460	15.633768	0.9	-2.7
12	APR	1982	2329	102.978477	83.594597	15.630228	0.8	-2.4
13	APR	1982	0	103.000000	83.594719	15.626746	0.6	-2.3
13	APR	1982	29	103.020142	83.594803	15.623422	0.4	-2.4
13	APR	1982	100	103.041664	83.594856	15.619573	0.2	-2.7
13	APR	1982	115	103.052086	83.594872	15.617572	0.2	-2.8
13	APR	1982	158	103.081940	83.594910	15.611684	0.2	-2.7
13	APR	1982	200	103.083336	83.594917	15.611423	0.2	-2.7
13	APR	1982	216	103.094444	83.594940	15.609461	0.3	-2.4
13	APR	1982	300	103.125000	83.595047	15.605081	0.6	-1.7
13	APR	1982	302	103.126396	83.595055	15.604920	0.7	-1.7
13	APR	1982	346	103.156944	83.595261	15.602048	1.1	-1.1
13	APR	1982	400	103.166664	83.595345	15.601343	1.2	-1.0
13	APR	1982	404	103.169441	83.595367	15.601157	1.2	-1.0
13	APR	1982	448	103.200005	83.595680	15.598963	1.3	-1.3
13	APR	1982	500	103.208336	83.595764	15.598140	1.3	-1.5
13	APR	1982	534	103.231941	83.595985	15.594941	1.1	-2.4
13	APR	1982	551	103.243752	83.596085	15.592802	1.0	-2.8
13	APR	1982	600	103.250000	83.596130	15.591515	0.9	-3.1
13	APR	1982	700	103.291664	83.596405	15.580820	1.1	-4.1
13	APR	1982	722	103.306946	83.596558	15.576474	1.5	-4.1
13	APR	1982	800	103.333336	83.596931	15.569054	2.2	-3.9
13	APR	1982	900	103.375000	83.597778	15.558558	2.7	-3.3
13	APR	1982	1000	103.416664	83.598549	15.549992	1.7	-2.7
13	APR	1982	1027	103.435417	83.598740	15.546487	0.9	-2.7
13	APR	1982	1100	103.458336	83.598816	15.542258	-0.1	-2.7
13	APR	1982	1200	103.500000	83.598587	15.534101	-1.1	-3.0
13	APR	1982	1214	103.509727	83.598511	15.532006	-1.1	-3.2
13	APR	1982	1300	103.541664	83.598244	15.524577	-0.9	-3.5
13	APR	1982	1400	103.583336	83.598015	15.514585	-0.5	-3.3
13	APR	1982	1402	103.584724	83.598015	15.514270	-0.5	-3.3
13	APR	1982	1438	103.609718	83.597916	15.508938	-0.5	-2.9
13	APR	1982	1500	103.625000	83.597839	15.506048	-0.7	-2.6
13	APR	1982	1600	103.666664	83.597511	15.499713	-1.4	-1.8
13	APR	1982	1700	103.708336	83.596947	15.495571	-2.0	-1.1
13	APR	1982	1703	103.710419	83.596916	15.495410	-2.0	-1.1
13	APR	1982	1800	103.750000	83.596268	15.492830	-2.1	-0.9
13	APR	1982	1900	103.791664	83.595612	15.489940	-1.8	-1.2
13	APR	1982	1923	103.807640	83.595398	15.488456	-1.6	-1.5
13	APR	1982	2000	103.833336	83.595108	15.485486	-1.3	-1.9
13	APR	1982	2100	103.875000	83.594749	15.479390	-1.0	-2.3
13	APR	1982	2148	103.908333	83.594482	15.473992	-1.1	-2.3
13	APR	1982	2200	103.916664	83.594406	15.472637	-1.3	-2.3
13	APR	1982	2220	103.930550	83.594261	15.470396	-1.5	-2.3
13	APR	1982	2300	103.958336	83.593872	15.466076	-2.1	-2.1
13	APR	1982	2336	103.983337	83.593414	15.462608	-2.7	-1.8
14	APR	1982	0	104.000000	83.593048	15.460604	-2.9	-1.6
14	APR	1982	6	104.004173	83.592949	15.460139	-3.0	-1.6
14	APR	1982	41	104.028473	83.592369	15.457660	-3.1	-1.4
14	APR	1982	100	104.041664	83.592056	15.456413	-3.0	-1.3
14	APR	1982	123	104.057640	83.591690	15.455013	-2.8	-1.2
14	APR	1982	153	104.078468	83.591263	15.453486	-2.5	-0.9
14	APR	1982	200	104.083336	83.591171	15.453186	-2.4	-0.9
14	APR	1982	300	104.125000	83.590469	15.451145	-2.1	-0.7
14	APR	1982	311	104.132637	83.590347	15.450768	-2.1	-0.7
14	APR	1982	400	104.166664	83.589783	15.448775	-2.2	-1.0
14	APR	1982	458	104.206940	83.589096	15.445794	-2.1	-1.1
14	APR	1982	500	104.208336	83.589073	15.445684	-2.1	-1.1
14	APR	1982	600	104.250000	83.588440	15.442189	-1.8	-1.3
14	APR	1982	700	104.291664	83.587875	15.437713	-1.7	-1.8
14	APR	1982	800	104.333336	83.587273	15.431259	-2.1	-2.6
14	APR	1982	848	104.366669	83.586670	15.424591	-2.6	-3.1
14	APR	1982	900	104.375000	83.586494	15.422797	-2.8	-3.1
14	APR	1982	936	104.400002	83.585922	15.417296	-3.1	-3.2
14	APR	1982	1000	104.416664	83.585503	15.413645	-3.3	-3.1
14	APR	1982	1018	104.429169	83.585182	15.410921	-3.3	-3.1

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
14	APR	1982	1100	104.458336	83.584435	15.404673	-3.4	-3.0
14	APR	1982	1124	104.474998	83.583992	15.401285	-3.5	-2.8
14	APR	1982	1200	104.500000	83.583298	15.396429	-3.5	-2.8
14	APR	1982	1204	104.502777	83.583221	15.395891	-3.5	-2.8
14	APR	1982	1300	104.541664	83.582169	15.387944	-3.5	-3.1
14	APR	1982	1312	104.549995	83.581947	15.386106	-3.5	-3.2
14	APR	1982	1350	104.576385	83.581230	15.380066	-3.5	-3.3
14	APR	1982	1400	104.583336	83.581047	15.378486	-3.5	-3.2
14	APR	1982	1500	104.625000	83.579941	15.370268	-3.3	-2.2
14	APR	1982	1500	104.625000	83.579941	15.370268	-3.3	-2.2
14	APR	1982	1536	104.650002	83.579300	15.367373	-3.3	-1.2
14	APR	1982	1600	104.666664	83.578865	15.366257	-3.4	-0.7
14	APR	1982	1700	104.708336	83.577721	15.364812	-3.5	-0.5
14	APR	1982	1722	104.723610	83.577309	15.364103	-3.4	-0.8
14	APR	1982	1800	104.750000	83.576630	15.362172	-3.1	-1.3
14	APR	1982	1900	104.791664	83.575676	15.357304	-2.7	-2.0
14	APR	1982	1945	104.822914	83.575035	15.352767	-2.6	-2.2
14	APR	1982	2000	104.833336	83.574821	15.351184	-2.6	-2.2
14	APR	1982	2100	104.875000	83.574013	15.344646	-2.5	-2.3
14	APR	1982	2200	104.916664	83.573204	15.337998	-2.5	-2.2
14	APR	1982	2243	104.946526	83.572617	15.333648	-2.6	-1.9
14	APR	1982	2257	104.956245	83.572418	15.332438	-2.6	-1.7
14	APR	1982	2300	104.958336	83.572372	15.332194	-2.6	-1.7
15	APR	1982	0	105.000000	83.571442	15.328540	-3.2	-0.9
15	APR	1982	30	105.020836	83.570877	15.327364	-3.7	-0.7
15	APR	1982	100	105.041664	83.570244	15.326308	-4.0	-0.8
15	APR	1982	138	105.068054	83.569412	15.324683	-4.0	-1.1
15	APR	1982	200	105.083336	83.568939	15.323445	-3.9	-1.3
15	APR	1982	218	105.095833	83.568573	15.322249	-3.7	-1.5
15	APR	1982	300	105.125000	83.567802	15.318862	-3.1	-1.9
15	APR	1982	301	105.125694	83.567780	15.318771	-3.1	-1.9
15	APR	1982	400	105.166664	83.566917	15.312715	-2.6	-2.3
15	APR	1982	406	105.170837	83.566833	15.312060	-2.6	-2.3
15	APR	1982	449	105.200691	83.566216	15.307487	-2.6	-2.1
15	APR	1982	500	105.208336	83.566063	15.306412	-2.6	-2.0
15	APR	1982	553	105.245140	83.565346	15.301839	-2.3	-1.7
15	APR	1982	600	105.250000	83.565262	15.301272	-2.2	-1.7
15	APR	1982	637	105.275696	83.564850	15.298309	-2.0	-1.6
15	APR	1982	658	105.290276	83.564621	15.296662	-2.0	-1.6
15	APR	1982	700	105.291664	83.564598	15.296505	-2.0	-1.6
15	APR	1982	800	105.333336	83.563919	15.292043	-2.4	-1.5
15	APR	1982	825	105.350700	83.563576	15.290262	-2.7	-1.5
15	APR	1982	846	105.365273	83.563255	15.288722	-3.0	-1.6
15	APR	1982	900	105.375000	83.563026	15.287625	-3.2	-1.7
15	APR	1982	1000	105.416664	83.561897	15.281642	-3.6	-2.6
15	APR	1982	1100	105.458336	83.560753	15.272096	-3.3	-4.0
15	APR	1982	1112	105.466667	83.560539	15.269741	-3.2	-4.2
15	APR	1982	1200	105.500000	83.559761	15.259099	-2.9	-4.9
15	APR	1982	1222	105.515282	83.559410	15.253757	-2.9	-5.1
15	APR	1982	1258	105.540276	83.558853	15.244674	-2.8	-5.3
15	APR	1982	1300	105.541664	83.558823	15.244164	-2.8	-5.3
15	APR	1982	1352	105.577782	83.557999	15.231444	-3.2	-4.7
15	APR	1982	1400	105.583336	83.557861	15.229689	-3.3	-4.5
15	APR	1982	1444	105.613892	83.557045	15.221210	-3.3	-3.6
15	APR	1982	1500	105.625000	83.556778	15.218547	-3.0	-3.4
15	APR	1982	1542	105.654167	83.556129	15.212086	-2.8	-3.2
15	APR	1982	1600	105.666664	83.555855	15.209299	-2.8	-3.3
15	APR	1982	1700	105.708336	83.554909	15.199663	-3.0	-3.3
15	APR	1982	1732	105.730560	83.554405	15.194784	-2.8	-3.0
15	APR	1982	1800	105.750000	83.553986	15.190907	-2.7	-2.7
15	APR	1982	1900	105.791664	83.553177	15.183769	-2.3	-2.3
15	APR	1982	1922	105.806946	83.552902	15.181324	-2.2	-2.3
15	APR	1982	2000	105.833336	83.552475	15.177021	-1.9	-2.4
15	APR	1982	2100	105.875000	83.551971	15.169513	-1.2	-2.7
15	APR	1982	2112	105.883331	83.551895	15.167927	-1.0	-2.8
15	APR	1982	2148	105.908333	83.551720	15.163218	-1.0	-2.6
15	APR	1982	2200	105.916664	83.551651	15.161759	-1.1	-2.5
15	APR	1982	2300	105.958336	83.551186	15.155535	-1.8	-1.9

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
15	APR	1982	2334	105.981941	83.550804	15.152467	-2.3	-1.8
16	APR	1982	0	106.000000	83.550468	15.150153	-2.5	-1.9
16	APR	1982	100	106.041664	83.549553	15.144896	-3.1	-1.7
16	APR	1982	121	106.056252	83.549194	15.143211	-3.3	-1.6
16	APR	1982	200	106.083336	83.548470	15.140397	-3.6	-1.4
16	APR	1982	300	106.125000	83.547279	15.136581	-3.7	-1.3
16	APR	1982	307	106.129860	83.547142	15.136130	-3.7	-1.4
16	APR	1982	400	106.166664	83.546112	15.132406	-3.4	-1.6
16	APR	1982	454	106.204163	83.545197	15.127734	-2.8	-2.0
16	APR	1982	500	106.208336	83.545105	15.127151	-2.8	-2.1
16	APR	1982	600	106.250000	83.544342	15.120515	-1.9	-2.6
16	APR	1982	700	106.291664	83.543877	15.112423	-1.0	-3.1
16	APR	1982	800	106.333336	83.543709	15.102941	-0.1	-3.5
16	APR	1982	900	106.375000	83.543808	15.092231	0.7	-3.9
16	APR	1982	1000	106.416664	83.544113	15.080548	1.2	-4.2
16	APR	1982	1100	106.458336	83.544540	15.068221	1.4	-4.4
16	APR	1982	1200	106.500000	83.544975	15.055614	1.2	-4.4
16	APR	1982	1300	106.541664	83.545311	15.043120	0.7	-4.3
16	APR	1982	1400	106.583336	83.545418	15.031132	-0.1	-4.0
16	APR	1982	1500	106.625000	83.545189	15.020024	-1.3	-3.7
16	APR	1982	1600	106.666664	83.544518	15.010132	-2.8	-3.2
16	APR	1982	1700	106.708336	83.543327	15.001712	-4.5	-2.6
16	APR	1982	1800	106.750000	83.541557	14.994948	-6.4	-2.1
16	APR	1982	1900	106.791664	83.539185	14.989906	-8.2	-1.5
16	APR	1982	2000	106.833336	83.536224	14.986520	-10.0	-0.9
16	APR	1982	2100	106.875000	83.532745	14.984571	-11.4	-0.5
16	APR	1982	2200	106.916664	83.528862	14.983664	-12.4	-0.2
16	APR	1982	2300	106.958336	83.524773	14.983206	-12.7	-0.2
17	APR	1982	0	107.000000	83.520714	14.982387	-12.1	-0.5
17	APR	1982	100	107.041664	83.517029	14.980156	-10.4	-1.2
17	APR	1982	145	107.072914	83.514740	14.976810	-8.3	-2.0
17	APR	1982	200	107.083336	83.514107	14.975278	-7.5	-2.3
17	APR	1982	215	107.093750	83.513535	14.973519	-6.6	-2.6
17	APR	1982	300	107.125000	83.512207	14.967117	-4.3	-3.2
17	APR	1982	400	107.166664	83.511147	14.958058	-2.7	-2.8
17	APR	1982	403	107.168755	83.511101	14.957658	-2.6	-2.8
17	APR	1982	500	107.208336	83.510292	14.950990	-2.8	-2.4
17	APR	1982	552	107.244446	83.509422	14.944374	-3.4	-3.1
17	APR	1982	600	107.250000	83.509270	14.943155	-3.5	-3.3
17	APR	1982	700	107.291664	83.508064	14.932895	-3.7	-3.5
17	APR	1982	706	107.295837	83.507942	14.931905	-3.7	-3.4
17	APR	1982	740	107.319450	83.507309	14.926855	-3.2	-2.8
17	APR	1982	800	107.333336	83.506989	14.924410	-2.7	-2.4
17	APR	1982	854	107.370827	83.506271	14.919198	-2.5	-1.9
17	APR	1982	900	107.375000	83.506187	14.918647	-2.6	-1.9
17	APR	1982	1000	107.416664	83.505203	14.912572	-3.4	-2.3
17	APR	1982	1042	107.445831	83.504379	14.907565	-3.8	-2.6
17	APR	1982	1100	107.458336	83.504013	14.905287	-3.8	-2.7
17	APR	1982	1200	107.500000	83.502800	14.897487	-3.6	-2.7
17	APR	1982	1300	107.541664	83.501663	14.890018	-3.4	-2.5
17	APR	1982	1400	107.583336	83.500542	14.883303	-3.6	-2.2
17	APR	1982	1456	107.622223	83.499397	14.877753	-4.0	-2.0
17	APR	1982	1500	107.625000	83.499306	14.877382	-4.1	-1.9
17	APR	1982	1600	107.666664	83.497910	14.872202	-4.5	-1.7
17	APR	1982	1700	107.708336	83.496437	14.867764	-4.5	-1.4
17	APR	1982	1800	107.750000	83.495087	14.864166	-3.8	-1.1
17	APR	1982	1900	107.791664	83.494041	14.861538	-2.6	-0.7
17	APR	1982	2000	107.833336	83.493416	14.860003	-1.4	-0.3
17	APR	1982	2026	107.851387	83.493256	14.859699	-0.9	-0.2
17	APR	1982	2100	107.875000	83.493126	14.859631	-0.5	0.1
17	APR	1982	2152	107.911110	83.492996	14.860181	-0.5	0.3
17	APR	1982	2200	107.916664	83.492981	14.860317	-0.5	0.4
17	APR	1982	2300	107.958336	83.492752	14.861504	-0.8	0.4
17	APR	1982	2339	107.985413	83.492554	14.862064	-1.0	0.2
18	APR	1982	0	108.000000	83.492439	14.862250	-1.1	0.1
18	APR	1982	100	108.041664	83.492043	14.862575	-1.4	0.1
18	APR	1982	127	108.060417	83.491829	14.862774	-1.6	0.2
18	APR	1982	152	108.077782	83.491615	14.862940	-1.6	0.1

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
18	APR	1982	200	108.083336	83.491547	14.862962	-1.6	0.0
18	APR	1982	300	108.125000	83.491058	14.862400	-1.3	-0.5
18	APR	1982	314	108.134727	83.490967	14.862047	-1.2	-0.6
18	APR	1982	340	108.152779	83.490807	14.861234	-1.0	-0.7
18	APR	1982	400	108.166664	83.490715	14.860596	-0.7	-0.6
18	APR	1982	500	108.208336	83.490562	14.859385	-0.4	-0.1
18	APR	1982	502	108.209724	83.490555	14.859373	-0.4	-0.1
18	APR	1982	529	108.228477	83.490501	14.859404	-0.4	0.1
18	APR	1982	600	108.250000	83.490433	14.859745	-0.5	0.3
18	APR	1982	616	108.261108	83.490387	14.859950	-0.5	0.3
18	APR	1982	700	108.291664	83.490273	14.860341	-0.5	0.1
18	APR	1982	717	108.303474	83.490227	14.860361	-0.5	0.0
18	APR	1982	800	108.333336	83.490143	14.860041	-0.2	-0.3
18	APR	1982	804	108.336113	83.490135	14.859987	-0.2	-0.3
18	APR	1982	900	108.375000	83.490166	14.858903	0.4	-0.5
18	APR	1982	952	108.411110	83.490326	14.857518	0.7	-0.7
18	APR	1982	1000	108.416664	83.490364	14.857244	0.8	-0.8
18	APR	1982	1022	108.431946	83.490463	14.856347	0.9	-1.0
18	APR	1982	1100	108.458336	83.490654	14.854114	0.9	-1.5
18	APR	1982	1139	108.485413	83.490822	14.850564	0.6	-2.3
18	APR	1982	1200	108.500000	83.490875	14.848128	0.3	-2.6
18	APR	1982	1208	108.505554	83.490883	14.847117	0.2	-2.7
18	APR	1982	1243	108.529854	83.490868	14.842239	-0.4	-3.1
18	APR	1982	1300	108.541664	83.490814	14.839639	-0.8	-3.3
18	APR	1982	1308	108.547218	83.490776	14.838370	-0.9	-3.4
18	APR	1982	1354	108.579163	83.490456	14.830592	-1.6	-3.7
18	APR	1982	1400	108.583336	83.490402	14.829535	-1.6	-3.7
18	APR	1982	1452	108.619446	83.489922	14.820125	-1.6	-3.9
18	APR	1982	1500	108.625000	83.489853	14.818631	-1.6	-3.9
18	APR	1982	1539	108.652077	83.489540	14.811288	-1.5	-3.9
18	APR	1982	1600	108.666664	83.489357	14.807423	-1.7	-3.8
18	APR	1982	1623	108.682640	83.489136	14.803287	-1.9	-3.7
18	APR	1982	1700	108.708336	83.488708	14.796745	-2.4	-3.7
18	APR	1982	1702	108.709724	83.488678	14.796395	-2.4	-3.7
18	APR	1982	1726	108.726387	83.488358	14.792207	-2.5	-3.6
18	APR	1982	1800	108.750000	83.487877	14.786461	-2.7	-3.4
18	APR	1982	1813	108.759026	83.487679	14.784391	-2.8	-3.3
18	APR	1982	1900	108.791664	83.486961	14.777769	-2.9	-2.6
18	APR	1982	2000	108.833336	83.486031	14.771997	-2.9	-1.5
18	APR	1982	2002	108.834724	83.486000	14.771861	-2.9	-1.4
18	APR	1982	2100	108.875000	83.485100	14.769332	-2.9	-0.4
18	APR	1982	2200	108.916664	83.484108	14.769178	-3.3	0.3
18	APR	1982	2246	108.948608	83.483238	14.770118	-3.7	0.5
18	APR	1982	2300	108.958336	83.482948	14.770498	-3.9	0.6
19	APR	1982	0	109.000000	83.481567	14.772054	-4.6	0.4
19	APR	1982	34	109.023613	83.480690	14.772368	-5.0	0.0
19	APR	1982	100	109.041664	83.479973	14.772131	-5.3	-0.4
19	APR	1982	200	109.083336	83.478119	14.769807	-6.2	-1.2
19	APR	1982	221	109.097923	83.477394	14.768458	-6.6	-1.5
19	APR	1982	300	109.125000	83.475922	14.765534	-7.4	-1.6
19	APR	1982	400	109.166664	83.473343	14.761897	-8.5	-0.8
19	APR	1982	409	109.172913	83.472923	14.761607	-8.7	-0.6
19	APR	1982	500	109.208336	83.470436	14.760886	-9.3	-0.3
19	APR	1982	506	109.212502	83.470131	14.760786	-9.3	-0.4
19	APR	1982	600	109.250000	83.467323	14.758645	-10.0	-1.4
19	APR	1982	654	109.287498	83.464203	14.754276	-11.7	-1.7
19	APR	1982	700	109.291664	83.463821	14.753818	-11.9	-1.6
19	APR	1982	714	109.301392	83.462891	14.752859	-12.6	-1.3
19	APR	1982	800	109.333336	83.459511	14.751407	-14.6	0.1
19	APR	1982	900	109.375000	83.454620	14.753877	-14.9	1.1
19	APR	1982	901	109.375694	83.454544	14.753928	-14.8	1.1
19	APR	1982	929	109.395142	83.452370	14.755018	-13.8	0.5
19	APR	1982	1000	109.416664	83.450165	14.754973	-12.5	-0.6
19	APR	1982	1049	109.450691	83.447067	14.752072	-11.2	-1.7
19	APR	1982	1100	109.458336	83.446411	14.751146	-11.0	-1.8
19	APR	1982	1116	109.469444	83.445465	14.749707	-10.8	-2.0
19	APR	1982	1200	109.500000	83.442940	14.745329	-10.3	-2.2
19	APR	1982	1200	109.500000	83.442940	14.745329	-10.3	-2.2

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
19	APR	1982	1237	109.525696	83.440918	14.741455	-9.9	-2.2
19	APR	1982	1300	109.541664	83.439705	14.739081	-9.7	-2.2
19	APR	1982	1301	109.542358	83.439651	14.738982	-9.7	-2.2
19	APR	1982	1344	109.572227	83.437439	14.734732	-9.5	-2.0
19	APR	1982	1400	109.583336	83.436615	14.733228	-9.5	-2.0
19	APR	1982	1410	109.590279	83.436104	14.732307	-9.5	-1.9
19	APR	1982	1426	109.601387	83.435287	14.730863	-9.4	-1.9
19	APR	1982	1447	109.615974	83.434227	14.728979	-9.2	-1.9
19	APR	1982	1500	109.625000	83.433578	14.727799	-9.1	-1.9
19	APR	1982	1529	109.645142	83.432167	14.725073	-8.9	-2.1
19	APR	1982	1600	109.666664	83.430687	14.721969	-8.9	-2.2
19	APR	1982	1600	109.666664	83.430687	14.721969	-8.9	-2.2
19	APR	1982	1633	109.689583	83.429054	14.718431	-9.4	-2.4
19	APR	1982	1700	109.708336	83.427650	14.715336	-9.9	-2.5
19	APR	1982	1750	109.743050	83.424904	14.709401	-10.2	-2.4
19	APR	1982	1800	109.750000	83.424355	14.708263	-10.2	-2.4
19	APR	1982	1900	109.791664	83.421165	14.702282	-9.2	-1.8
19	APR	1982	1940	109.819450	83.419304	14.699441	-8.0	-1.2
19	APR	1982	2000	109.833336	83.418457	14.698433	-7.5	-0.9
19	APR	1982	2100	109.875000	83.416191	14.697193	-6.8	0.1
19	APR	1982	2153	109.911804	83.414223	14.698259	-7.0	0.7
19	APR	1982	2200	109.916664	83.413956	14.698496	-7.1	0.7
19	APR	1982	2231	109.938194	83.412758	14.699654	-7.2	0.8
19	APR	1982	2300	109.958336	83.411644	14.700692	-7.0	0.7
19	APR	1982	2341	109.986809	83.410133	14.701766	-6.5	0.4
20	APR	1982	0	110.000000	83.409485	14.702040	-6.2	0.2
20	APR	1982	18	110.012505	83.408905	14.702152	-5.8	0.0
20	APR	1982	100	110.041664	83.407669	14.701919	-5.1	-0.3
20	APR	1982	128	110.061104	83.406929	14.701520	-4.8	-0.3
20	APR	1982	200	110.083336	83.406128	14.700998	-4.5	-0.3
20	APR	1982	204	110.086113	83.406029	14.700934	-4.5	-0.3
20	APR	1982	300	110.125000	83.404678	14.700132	-4.5	-0.3
20	APR	1982	316	110.136108	83.404282	14.699921	-4.6	-0.3
20	APR	1982	350	110.159721	83.403397	14.699425	-5.0	-0.4
20	APR	1982	400	110.166664	83.403130	14.699249	-5.1	-0.4
20	APR	1982	500	110.208336	83.401367	14.697951	-5.6	-0.5
20	APR	1982	503	110.210419	83.401276	14.697885	-5.7	-0.5
20	APR	1982	600	110.250000	83.399483	14.696890	-6.0	-0.2
20	APR	1982	700	110.291664	83.397438	14.696808	-6.7	0.2
20	APR	1982	800	110.333336	83.395103	14.698105	-7.7	0.7
20	APR	1982	811	110.340973	83.394638	14.698517	-7.9	0.9
20	APR	1982	900	110.375000	83.392433	14.701097	-8.6	1.4
20	APR	1982	959	110.415977	83.389664	14.705712	-8.4	1.8
20	APR	1982	1000	110.416664	83.389618	14.705796	-8.4	1.8
20	APR	1982	1023	110.432640	83.388596	14.707780	-8.0	1.8
20	APR	1982	1100	110.458336	83.387077	14.710842	-7.2	1.7
20	APR	1982	1147	110.490974	83.385345	14.714105	-6.5	1.3
20	APR	1982	1200	110.500000	83.384888	14.714871	-6.5	1.2
20	APR	1982	1209	110.506248	83.384575	14.715372	-6.4	1.2
20	APR	1982	1236	110.525002	83.383644	14.716753	-6.3	1.1
20	APR	1982	1300	110.541664	83.382835	14.717952	-6.1	1.1
20	APR	1982	1334	110.565277	83.381744	14.719997	-5.7	1.5
20	APR	1982	1400	110.583336	83.380966	14.722084	-5.3	1.9
20	APR	1982	1421	110.597923	83.380379	14.724051	-5.1	2.1
20	APR	1982	1500	110.625000	83.379341	14.727914	-4.9	2.0
20	APR	1982	1600	110.666664	83.377663	14.732422	-5.6	1.0
20	APR	1982	1606	110.670837	83.377480	14.732685	-5.7	0.9
20	APR	1982	1700	110.708336	83.375641	14.733228	-6.9	-0.4
20	APR	1982	1800	110.750000	83.373253	14.730629	-7.8	-1.3
20	APR	1982	1900	110.791664	83.370667	14.726722	-8.0	-1.3
20	APR	1982	2000	110.833336	83.368164	14.723965	-7.3	-0.5
20	APR	1982	2100	110.875000	83.365952	14.723794	-6.3	0.4
20	APR	1982	2122	110.890282	83.365227	14.724328	-5.9	0.6
20	APR	1982	2200	110.916664	83.364059	14.725745	-5.5	0.9
20	APR	1982	2227	110.935417	83.363266	14.726946	-5.4	1.0
20	APR	1982	2248	110.950005	83.362656	14.728035	-5.5	1.2
20	APR	1982	2300	110.958336	83.362297	14.728769	-5.5	1.4
20	APR	1982	2308	110.963890	83.362053	14.729314	-5.6	1.5

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
21	APR	1982	0	111.000000	83.360466	14.733271	-5.6	1.5
21	APR	1982	13	111.009026	83.360077	14.734096	-5.5	1.2
21	APR	1982	100	111.041664	83.358765	14.735751	-4.8	0.2
21	APR	1982	200	111.083336	83.357391	14.735044	-3.6	-0.5
21	APR	1982	232	111.105560	83.356819	14.734329	-3.0	-0.4
21	APR	1982	300	111.125000	83.356407	14.733815	-2.5	-0.4
21	APR	1982	400	111.166664	83.355728	14.732359	-1.8	-0.9
21	APR	1982	420	111.180550	83.355545	14.731316	-1.6	-1.3
21	APR	1982	500	111.208336	83.355225	14.728078	-1.3	-2.1
21	APR	1982	600	111.250000	83.354881	14.721111	-0.8	-2.7
21	APR	1982	608	111.255554	83.354843	14.720107	-0.8	-2.7
21	APR	1982	700	111.291664	83.354668	14.713402	-0.6	-2.9
21	APR	1982	721	111.306252	83.354607	14.710502	-0.5	-3.0
21	APR	1982	757	111.331245	83.354546	14.705127	0.0	-3.4
21	APR	1982	800	111.333336	83.354546	14.704650	0.1	-3.4
21	APR	1982	900	111.375000	83.354958	14.694041	2.7	-4.2
21	APR	1982	1000	111.416664	83.356285	14.681067	5.3	-5.1
21	APR	1982	1057	111.456245	83.358078	14.665785	6.0	-6.5
21	APR	1982	1100	111.458336	83.358177	14.664867	6.0	-6.6
21	APR	1982	1200	111.500000	83.360054	14.643208	5.4	-9.1
21	APR	1982	1244	111.530556	83.361320	14.622347	5.5	-11.1
21	APR	1982	1300	111.541664	83.361816	14.613807	6.0	-11.7
21	APR	1982	1303	111.543755	83.361916	14.612156	6.1	-11.8
21	APR	1982	1324	111.558327	83.362640	14.600206	6.8	-12.5
21	APR	1982	1400	111.583336	83.364120	14.578271	8.4	-13.5
21	APR	1982	1449	111.617363	83.366600	14.545843	10.0	-14.8
21	APR	1982	1500	111.625000	83.367195	14.538144	10.1	-15.1
21	APR	1982	1514	111.634727	83.367966	14.528112	10.2	-15.5
21	APR	1982	1600	111.666664	83.370567	14.494045	10.8	-15.9
21	APR	1982	1635	111.690971	83.372696	14.468591	11.6	-15.2
21	APR	1982	1700	111.708336	83.374290	14.451103	11.9	-14.8
21	APR	1982	1704	111.711113	83.374542	14.448347	11.9	-14.7
21	APR	1982	1800	111.750000	83.377975	14.410054	10.2	-14.8
21	APR	1982	1854	111.787498	83.380539	14.372092	7.4	-15.2
21	APR	1982	1900	111.791664	83.380775	14.367809	7.2	-15.2
21	APR	1982	2000	111.833336	83.382774	14.324389	5.5	-15.8
21	APR	1982	2043	111.863190	83.384033	14.292088	5.4	-16.3
21	APR	1982	2100	111.875000	83.384529	14.279004	5.5	-16.5
21	APR	1982	2200	111.916664	83.386330	14.232791	5.6	-15.9
21	APR	1982	2300	111.958336	83.388069	14.191715	5.0	-12.9
21	APR	1982	2342	111.987495	83.389099	14.169361	4.0	-9.8
22	APR	1982	0	112.000000	83.389473	14.161640	3.6	-8.5
22	APR	1982	100	112.041664	83.390388	14.142434	2.1	-5.7
22	APR	1982	130	112.062500	83.390694	14.134825	1.7	-5.2
22	APR	1982	200	112.083336	83.390938	14.127643	1.5	-5.0
22	APR	1982	210	112.090279	83.391022	14.125278	1.5	-5.0
22	APR	1982	300	112.125000	83.391472	14.113516	1.9	-5.0
22	APR	1982	358	112.165276	83.392189	14.099814	2.7	-5.0
22	APR	1982	400	112.166664	83.392220	14.099341	2.7	-5.0
22	APR	1982	500	112.208336	83.393211	14.084961	3.4	-5.3
22	APR	1982	546	112.240273	83.394104	14.073225	3.7	-5.5
22	APR	1982	600	112.250000	83.394379	14.069574	3.6	-5.6
22	APR	1982	631	112.271523	83.394966	14.061560	3.4	-5.4
22	APR	1982	700	112.291664	83.395470	14.054487	3.1	-5.0
22	APR	1982	734	112.315277	83.396042	14.047070	3.2	-4.3
22	APR	1982	800	112.333336	83.396500	14.042138	3.4	-3.8
22	APR	1982	818	112.345833	83.396828	14.039114	3.4	-3.4
22	APR	1982	836	112.358337	83.397171	14.036412	3.5	-3.0
22	APR	1982	900	112.375000	83.397621	14.033333	3.5	-2.5
22	APR	1982	1000	112.416664	83.398682	14.028300	2.9	-1.1
22	APR	1982	1006	112.420837	83.398781	14.028002	2.8	-1.0
22	APR	1982	1025	112.434029	83.399055	14.027293	2.5	-0.6
22	APR	1982	1100	112.458336	83.399490	14.026865	2.1	0.0
22	APR	1982	1154	112.495827	83.400009	14.026958	1.5	-0.2
22	APR	1982	1200	112.500000	83.400055	14.026874	1.5	-0.4
22	APR	1982	1300	112.541664	83.400482	14.023829	1.2	-1.9
22	APR	1982	1301	112.542358	83.400490	14.023740	1.2	-1.9
22	APR	1982	1342	112.570831	83.400749	14.018747	1.0	-3.3

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
22	APR	1982	1356	112.580559	83.400826	14.016409	0.9	-3.8
22	APR	1982	1400	112.583336	83.400841	14.015679	0.9	-3.9
22	APR	1982	1450	112.618050	83.401039	14.005072	0.7	-4.8
22	APR	1982	1500	112.625000	83.401070	14.002828	0.7	-4.8
22	APR	1982	1542	112.654167	83.401268	13.993400	1.2	-4.9
22	APR	1982	1600	112.666664	83.401398	13.989243	1.5	-5.0
22	APR	1982	1640	112.694450	83.401794	13.979418	2.1	-5.5
22	APR	1982	1700	112.708336	83.402031	13.974054	2.3	-5.9
22	APR	1982	1800	112.750000	83.402847	13.956011	2.6	-6.9
22	APR	1982	1830	112.770836	83.403267	13.946095	2.6	-7.2
22	APR	1982	1900	112.791664	83.403687	13.935680	2.6	-7.6
22	APR	1982	2000	112.833336	83.404610	13.913229	3.2	-8.4
22	APR	1982	2020	112.847221	83.404976	13.905169	3.5	-8.7
22	APR	1982	2100	112.875000	83.405792	13.888177	4.0	-9.3
22	APR	1982	2200	112.916664	83.407127	13.861506	4.0	-9.4
22	APR	1982	2250	112.951385	83.408096	13.840219	3.1	-8.6
22	APR	1982	2300	112.958336	83.408257	13.836246	2.8	-8.3
23	APR	1982	0	113.000000	83.408943	13.815082	1.5	-6.6
23	APR	1982	37	113.025696	83.409203	13.804463	1.2	-5.7
23	APR	1982	100	113.041664	83.409363	13.798538	1.3	-5.3
23	APR	1982	147	113.074310	83.409760	13.786688	1.9	-5.7
23	APR	1982	200	113.083336	83.409904	13.783132	2.1	-6.0
23	APR	1982	225	113.100700	83.410210	13.775749	2.3	-6.6
23	APR	1982	300	113.125000	83.410622	13.764280	2.0	-7.4
23	APR	1982	335	113.149300	83.410957	13.751413	1.4	-8.3
23	APR	1982	400	113.166664	83.411110	13.741039	0.7	-9.3
23	APR	1982	412	113.174995	83.411140	13.735607	0.3	-9.9
23	APR	1982	500	113.208336	83.411057	13.710836	-0.5	-11.9
23	APR	1982	523	113.224304	83.411011	13.697528	-0.2	-12.6
23	APR	1982	600	113.250000	83.411102	13.674961	1.3	-13.1
23	APR	1982	700	113.291664	83.412048	13.638820	4.6	-12.1
23	APR	1982	711	113.299309	83.412346	13.632660	5.2	-11.7
23	APR	1982	800	113.333336	83.413986	13.607402	6.8	-10.4
23	APR	1982	900	113.375000	83.416153	13.579231	6.0	-9.8
23	APR	1982	916	113.386108	83.416649	13.571858	5.4	-9.8
23	APR	1982	932	113.397224	83.417084	13.564500	4.8	-9.7
23	APR	1982	1000	113.416664	83.417725	13.551829	3.7	-9.5
23	APR	1982	1100	113.458336	83.418640	13.526790	2.1	-8.1
23	APR	1982	1200	113.500000	83.419167	13.506123	1.2	-6.6
23	APR	1982	1238	113.526390	83.419373	13.494879	0.8	-6.0
23	APR	1982	1300	113.541664	83.419456	13.488775	0.6	-5.8
23	APR	1982	1400	113.583336	83.419563	13.472640	-0.1	-5.8
23	APR	1982	1427	113.602081	83.419525	13.465056	-0.5	-6.1
23	APR	1982	1500	113.625000	83.419388	13.455268	-1.1	-6.5
23	APR	1982	1600	113.666664	83.418793	13.436099	-2.6	-7.1
23	APR	1982	1617	113.678474	83.418541	13.430372	-3.0	-7.2
23	APR	1982	1636	113.691673	83.418213	13.423814	-3.4	-7.4
23	APR	1982	1700	113.708336	83.417747	13.415230	-3.8	-7.8
23	APR	1982	1800	113.750000	83.416351	13.392087	-4.8	-8.6
23	APR	1982	1807	113.754860	83.416161	13.389230	-5.0	-8.7
23	APR	1982	1900	113.791664	83.414612	13.366817	-5.8	-9.2
23	APR	1982	1957	113.831245	83.412727	13.342359	-6.3	-8.9
23	APR	1982	2000	113.833336	83.412628	13.341098	-6.3	-8.9
23	APR	1982	2100	113.875000	83.410583	13.317186	-6.2	-7.9
23	APR	1982	2200	113.916664	83.408638	13.296767	-5.7	-6.5
23	APR	1982	2300	113.958336	83.406898	13.280723	-5.0	-4.9
24	APR	1982	0	114.000000	83.405388	13.269190	-4.3	-3.3
24	APR	1982	100	114.041664	83.404068	13.261732	-3.8	-2.0
24	APR	1982	200	114.083336	83.402878	13.257524	-3.5	-1.0
24	APR	1982	300	114.125000	83.401741	13.255518	-3.5	-0.5
24	APR	1982	400	114.166664	83.400566	13.254627	-3.8	-0.2
24	APR	1982	500	114.208336	83.399269	13.253896	-4.2	-0.3
24	APR	1982	600	114.250000	83.397812	13.252671	-4.8	-0.6
24	APR	1982	700	114.291664	83.396194	13.250786	-5.2	-0.8
24	APR	1982	800	114.333336	83.394485	13.248727	-5.3	-0.6
24	APR	1982	900	114.375000	83.392815	13.247809	-4.8	0.1
24	APR	1982	949	114.409027	83.391647	13.249422	-3.9	1.4
24	APR	1982	1000	114.416664	83.391426	13.250235	-3.6	1.8

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
24	APR	1982	1014	114.426392	83.391167	13.251541	-3.2	2.2
24	APR	1982	1100	114.458336	83.390480	13.257957	-2.4	3.7
24	APR	1982	1134	114.481941	83.390045	13.264538	-2.4	4.5
24	APR	1982	1200	114.500000	83.389687	13.270407	-2.7	5.1
24	APR	1982	1300	114.541664	83.388588	13.286247	-4.2	6.2
24	APR	1982	1318	114.554169	83.388161	13.291557	-4.7	6.4
24	APR	1982	1400	114.583336	83.386971	13.304744	-5.6	6.9
24	APR	1982	1404	114.586113	83.386848	13.306040	-5.6	6.9
24	APR	1982	1500	114.625000	83.384972	13.323778	-7.0	6.2
24	APR	1982	1503	114.627083	83.384857	13.324650	-7.1	6.2
24	APR	1982	1554	114.662498	83.382706	13.337568	-8.2	4.7
24	APR	1982	1600	114.666664	83.382446	13.338871	-8.2	4.6
24	APR	1982	1700	114.708336	83.379791	13.349236	-8.0	2.7
24	APR	1982	1744	114.738892	83.377960	13.353142	-7.5	1.0
24	APR	1982	1800	114.750000	83.377312	13.353681	-7.4	0.4
24	APR	1982	1900	114.791664	83.375031	13.352084	-6.7	-1.3
24	APR	1982	1934	114.815277	83.373840	13.349611	-6.2	-1.8
24	APR	1982	2000	114.833336	83.372986	13.347322	-5.9	-2.0
24	APR	1982	2100	114.875000	83.371162	13.341106	-5.4	-2.4
24	APR	1982	2200	114.916664	83.369469	13.334138	-4.9	-2.4
24	APR	1982	2205	114.920135	83.369339	13.333575	-4.9	-2.4
24	APR	1982	2242	114.945831	83.368423	13.329787	-4.2	-1.9
24	APR	1982	2300	114.958336	83.368042	13.328333	-3.8	-1.5
24	APR	1982	2352	114.994446	83.367111	13.325824	-3.0	-0.6
25	APR	1982	0	115.000000	83.366982	13.325633	-2.9	-0.5
25	APR	1982	100	115.041664	83.366142	13.324822	-2.1	-0.4
25	APR	1982	101	115.042358	83.366127	13.324802	-2.1	-0.4
25	APR	1982	138	115.068054	83.365768	13.323716	-1.6	-0.8
25	APR	1982	200	115.083336	83.365585	13.322834	-1.5	-0.9
25	APR	1982	250	115.118050	83.365189	13.320236	-1.4	-1.3
25	APR	1982	300	115.125000	83.365112	13.319577	-1.5	-1.5
25	APR	1982	324	115.141663	83.364922	13.317790	-1.5	-1.7
25	APR	1982	400	115.166664	83.364624	13.314525	-1.5	-2.2
25	APR	1982	438	115.193054	83.364304	13.310092	-1.6	-2.8
25	APR	1982	500	115.208336	83.364105	13.306953	-1.8	-3.3
25	APR	1982	510	115.215279	83.363998	13.305386	-1.9	-3.4
25	APR	1982	548	115.241669	83.363533	13.298810	-2.7	-3.9
25	APR	1982	600	115.250000	83.363342	13.296615	-3.1	-3.9
25	APR	1982	626	115.268059	83.362869	13.291780	-3.7	-4.0
25	APR	1982	700	115.291664	83.362129	13.285480	-4.4	-3.9
25	APR	1982	736	115.316673	83.361198	13.279228	-5.1	-3.6
25	APR	1982	800	115.333336	83.360512	13.275290	-5.4	-3.5
25	APR	1982	814	115.343056	83.360100	13.272986	-5.5	-3.6
25	APR	1982	841	115.361809	83.359283	13.268358	-5.6	-3.8
25	APR	1982	900	115.375000	83.358711	13.264841	-5.6	-4.1
25	APR	1982	924	115.391663	83.357964	13.260093	-5.9	-4.4
25	APR	1982	1000	115.416664	83.356773	13.252677	-6.4	-4.4
25	APR	1982	1026	115.434723	83.355858	13.247496	-6.6	-4.1
25	APR	1982	1100	115.458336	83.354630	13.241316	-6.7	-3.6
25	APR	1982	1112	115.466667	83.354187	13.239342	-6.8	-3.4
25	APR	1982	1200	115.500000	83.352448	13.232300	-6.5	-3.0
25	APR	1982	1210	115.506950	83.352104	13.230902	-6.4	-3.0
25	APR	1982	1259	115.540977	83.350479	13.224260	-5.8	-2.7
25	APR	1982	1300	115.541664	83.350449	13.224134	-5.8	-2.7
25	APR	1982	1341	115.570137	83.349174	13.219520	-5.8	-2.0
25	APR	1982	1400	115.583336	83.348564	13.217939	-6.0	-1.6
25	APR	1982	1500	115.625000	83.346474	13.214746	-6.8	-1.0
25	APR	1982	1531	115.646523	83.345299	13.213004	-7.2	-1.4
25	APR	1982	1600	115.666664	83.344147	13.210729	-7.4	-2.0
25	APR	1982	1700	115.708336	83.341705	13.203378	-7.6	-3.3
25	APR	1982	1721	115.722923	83.340851	13.199942	-7.5	-3.7
25	APR	1982	1800	115.750000	83.339272	13.192503	-7.5	-4.4
25	APR	1982	1900	115.791664	83.336838	13.179379	-7.6	-4.8
25	APR	1982	1911	115.799309	83.336388	13.176913	-7.7	-4.8
25	APR	1982	2000	115.833336	83.334312	13.166186	-8.0	-4.5
25	APR	1982	2100	115.875000	83.331665	13.154490	-8.3	-3.8
25	APR	1982	2152	115.911110	83.329323	13.146393	-8.4	-2.9
25	APR	1982	2200	115.916664	83.328957	13.145337	-8.4	-2.8

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
25	APR	1982	2300	115.958336	83.326263	13.138988	-8.2	-1.8
26	APR	1982	0	116.000000	83.323624	13.134950	-8.0	-1.1
26	APR	1982	100	116.041664	83.321068	13.132264	-7.7	-0.9
26	APR	1982	200	116.083336	83.318619	13.129797	-7.4	-1.0
26	APR	1982	227	116.102081	83.317558	13.128482	-7.2	-1.1
26	APR	1982	300	116.125000	83.316292	13.126595	-7.0	-1.3
26	APR	1982	400	116.166664	83.314117	13.122060	-6.3	-2.0
26	APR	1982	415	116.177086	83.313622	13.120604	-6.1	-2.2
26	APR	1982	500	116.208336	83.312241	13.115142	-5.2	-3.1
26	APR	1982	600	116.250000	83.310677	13.104837	-4.7	-4.2
26	APR	1982	603	116.252083	83.310600	13.104257	-4.8	-4.2
26	APR	1982	646	116.281944	83.309372	13.095835	-6.1	-4.1
26	APR	1982	700	116.291664	83.308884	13.093266	-6.9	-3.8
26	APR	1982	751	116.327087	83.306595	13.084446	-9.6	-3.9
26	APR	1982	800	116.333336	83.306122	13.082790	-10.0	-4.1
26	APR	1982	834	116.356941	83.304169	13.076015	-11.2	-4.5
26	APR	1982	900	116.375000	83.302567	13.070415	-11.5	-4.8
26	APR	1982	918	116.387505	83.301445	13.066298	-11.6	-5.1
26	APR	1982	1000	116.416664	83.298813	13.055783	-11.7	-5.7
26	APR	1982	1022	116.431946	83.297409	13.049818	-11.8	-6.0
26	APR	1982	1100	116.458336	83.294991	13.039001	-11.6	-6.3
26	APR	1982	1102	116.459724	83.294861	13.038418	-11.5	-6.3
26	APR	1982	1200	116.500000	83.291458	13.021960	-10.0	-5.7
26	APR	1982	1209	116.506248	83.290977	13.019614	-9.7	-5.5
26	APR	1982	1247	116.532646	83.289078	13.010781	-8.9	-4.4
26	APR	1982	1300	116.541664	83.288460	13.008251	-8.7	-4.0
26	APR	1982	1318	116.554169	83.287613	13.005199	-8.6	-3.4
26	APR	1982	1400	116.583336	83.285683	12.999903	-8.4	-2.2
26	APR	1982	1432	116.605560	83.284271	12.996865	-7.9	-2.0
26	APR	1982	1500	116.625000	83.283112	12.994316	-7.4	-2.0
26	APR	1982	1508	116.630554	83.282799	12.993555	-7.2	-2.1
26	APR	1982	1600	116.666664	83.280914	12.987862	-6.2	-2.7
26	APR	1982	1617	116.678474	83.280350	12.985610	-5.9	-3.0
26	APR	1982	1658	116.706940	83.279129	12.979457	-5.2	-3.4
26	APR	1982	1700	116.708336	83.279076	12.979141	-5.1	-3.4
26	APR	1982	1800	116.750000	83.277519	12.969614	-4.6	-3.4
26	APR	1982	1848	116.783333	83.276321	12.962427	-4.7	-3.2
26	APR	1982	1900	116.791664	83.276009	12.960691	-4.8	-3.1
26	APR	1982	2000	116.833336	83.274414	12.952084	-5.0	-3.2
26	APR	1982	2100	116.875000	83.272797	12.943052	-4.9	-3.4
26	APR	1982	2103	116.877083	83.272720	12.942587	-4.8	-3.4
26	APR	1982	2200	116.916664	83.271301	12.933843	-4.3	-3.2
26	APR	1982	2300	116.958336	83.269989	12.925883	-3.9	-2.5
26	APR	1982	2320	116.972221	83.269569	12.923690	-3.9	-2.3
27	APR	1982	0	117.000000	83.268684	12.919868	-4.3	-2.0
27	APR	1982	35	117.024300	83.267799	12.916674	-5.0	-2.0
27	APR	1982	100	117.041664	83.267105	12.914270	-5.3	-2.1
27	APR	1982	106	117.045837	83.266937	12.913673	-5.3	-2.2
27	APR	1982	200	117.083336	83.265442	12.908066	-4.5	-2.3
27	APR	1982	204	117.086113	83.265350	12.907640	-4.4	-2.3
27	APR	1982	252	117.119446	83.264381	12.902585	-3.3	-2.2
27	APR	1982	300	117.125000	83.264236	12.901769	-3.2	-2.2
27	APR	1982	352	117.161110	83.263359	12.896417	-3.3	-2.4
27	APR	1982	400	117.166664	83.263214	12.895525	-3.4	-2.5
27	APR	1982	411	117.174309	83.263008	12.894246	-3.6	-2.6
27	APR	1982	438	117.193054	83.262466	12.890888	-3.9	-2.8
27	APR	1982	500	117.208336	83.261986	12.887959	-4.1	-3.0
27	APR	1982	540	117.236115	83.261108	12.882333	-4.0	-3.1
27	APR	1982	600	117.250000	83.260689	12.879461	-3.8	-3.1
27	APR	1982	700	117.291664	83.259384	12.870882	-4.6	-3.1
27	APR	1982	728	117.311104	83.258606	12.866872	-5.7	-3.2
27	APR	1982	747	117.324310	83.257980	12.864007	-6.4	-3.4
27	APR	1982	800	117.333336	83.257515	12.861917	-6.9	-3.6
27	APR	1982	810	117.340279	83.257126	12.860210	-7.2	-3.8
27	APR	1982	900	117.375000	83.254982	12.850021	-8.5	-5.2
27	APR	1982	954	117.412498	83.252388	12.835392	-9.1	-6.5
27	APR	1982	1000	117.416664	83.252090	12.833591	-9.1	-6.6
27	APR	1982	1100	117.458336	83.249153	12.813922	-8.8	-7.8

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
27	APR	1982	1139	117.485413	83.247337	12.799354	-8.4	-8.4
27	APR	1982	1200	117.500000	83.246384	12.791151	-8.4	-8.6
27	APR	1982	1255	117.538200	83.243729	12.771108	-10.0	-6.7
27	APR	1982	1300	117.541664	83.243454	12.769611	-10.3	-6.4
27	APR	1982	1400	117.583336	83.239700	12.756733	-12.5	-3.4
27	APR	1982	1445	117.614586	83.236641	12.750584	-12.2	-2.9
27	APR	1982	1500	117.625000	83.235672	12.748550	-11.7	-3.0
27	APR	1982	1508	117.630554	83.235168	12.747422	-11.4	-3.1
27	APR	1982	1600	117.666664	83.232224	12.739174	-9.6	-3.8
27	APR	1982	1635	117.690971	83.230499	12.732615	-8.8	-4.4
27	APR	1982	1654	117.704163	83.229607	12.728577	-8.7	-4.9
27	APR	1982	1700	117.708336	83.229324	12.727213	-8.6	-5.0
27	APR	1982	1800	117.750000	83.226517	12.710994	-8.8	-6.8
27	APR	1982	1825	117.767365	83.225311	12.702794	-9.0	-7.5
27	APR	1982	1900	117.791664	83.223572	12.690102	-9.3	-8.3
27	APR	1982	2000	117.833336	83.220535	12.666358	-9.4	-8.8
27	APR	1982	2100	117.875000	83.217514	12.642534	-9.2	-8.4
27	APR	1982	2200	117.916664	83.214607	12.620691	-8.8	-7.4
27	APR	1982	2300	117.958336	83.211838	12.601986	-8.3	-6.2
28	APR	1982	0	118.000000	83.209213	12.586829	-7.9	-4.9
28	APR	1982	100	118.041664	83.206703	12.575006	-7.6	-3.8
28	APR	1982	200	118.083336	83.204254	12.565823	-7.5	-3.0
28	APR	1982	300	118.125000	83.201790	12.558243	-7.7	-2.6
28	APR	1982	400	118.166664	83.199226	12.551019	-8.1	-2.7
28	APR	1982	500	118.208336	83.196495	12.542836	-8.8	-3.3
28	APR	1982	600	118.250000	83.193512	12.532443	-9.7	-4.3
28	APR	1982	700	118.291664	83.190208	12.518794	-10.7	-5.7
28	APR	1982	800	118.333336	83.186539	12.501173	-11.9	-7.2
28	APR	1982	841	118.361809	83.183807	12.486694	-12.7	-8.3
28	APR	1982	900	118.375000	83.182480	12.479318	-13.1	-8.8
28	APR	1982	1000	118.416664	83.178055	12.453455	-14.2	-10.1
28	APR	1982	1100	118.458336	83.173302	12.424451	-15.1	-11.1
28	APR	1982	1200	118.500000	83.168289	12.393524	-15.7	-11.6
28	APR	1982	1300	118.541664	83.163124	12.361955	-16.1	-11.6
28	APR	1982	1400	118.583336	83.157890	12.330797	-16.1	-11.3
28	APR	1982	1500	118.625000	83.152695	12.300616	-15.9	-10.9
28	APR	1982	1545	118.656250	83.148865	12.278567	-15.6	-10.8
28	APR	1982	1600	118.666664	83.147606	12.271278	-15.4	-10.7
28	APR	1982	1700	118.708336	83.142677	12.242022	-14.9	-10.9
28	APR	1982	1800	118.750000	83.137917	12.211708	-14.5	-11.4
28	APR	1982	1802	118.751396	83.137764	12.210672	-14.4	-11.4
28	APR	1982	1900	118.791664	83.133263	12.180701	-14.3	-11.3
28	APR	1982	1952	118.827782	83.129219	12.155295	-14.5	-10.3
28	APR	1982	2000	118.833336	83.128593	12.151639	-14.6	-10.0
28	APR	1982	2100	118.875000	83.123787	12.126611	-15.1	-8.5
28	APR	1982	2200	118.916664	83.118797	12.104931	-15.7	-7.7
28	APR	1982	2300	118.958336	83.113647	12.083669	-16.0	-8.3
29	APR	1982	0	119.000000	83.108459	12.059180	-15.9	-10.1
29	APR	1982	100	119.041664	83.103439	12.028945	-14.9	-12.4
29	APR	1982	118	119.054169	83.102005	12.018679	-14.5	-13.0
29	APR	1982	200	119.083336	83.098854	11.992867	-13.2	-14.2
29	APR	1982	300	119.125000	83.094925	11.953658	-10.9	-14.6
29	APR	1982	307	119.129860	83.094521	11.949092	-10.6	-14.5
29	APR	1982	400	119.166664	83.091782	11.915375	-8.7	-13.8
29	APR	1982	455	119.204865	83.089317	11.882759	-8.2	-12.4
29	APR	1982	500	119.208336	83.089096	11.879994	-8.2	-12.3
29	APR	1982	600	119.250000	83.086273	11.850952	-9.4	-9.0
29	APR	1982	603	119.252083	83.086121	11.849764	-9.5	-8.7
29	APR	1982	643	119.279854	83.083946	11.836383	-10.5	-6.4
29	APR	1982	700	119.291664	83.082962	11.831731	-10.9	-5.8
29	APR	1982	751	119.327087	83.079727	11.819846	-12.9	-5.0
29	APR	1982	800	119.333336	83.079086	11.817838	-13.4	-5.0
29	APR	1982	831	119.354858	83.076691	11.810439	-15.2	-5.9
29	APR	1982	900	119.375000	83.074196	11.801777	-16.6	-7.6
29	APR	1982	1000	119.416664	83.068420	11.775320	-18.7	-12.2
29	APR	1982	1100	119.458336	83.062103	11.738598	-20.2	-14.3
29	APR	1982	1127	119.477081	83.059097	11.721784	-21.0	-13.5
29	APR	1982	1200	119.500000	83.055244	11.703225	-22.2	-11.5

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
29	APR	1982	1209	119.506248	83.054153	11.698755	-22.6	-10.8
29	APR	1982	1252	119.536110	83.048813	11.680059	-22.9	-9.4
29	APR	1982	1300	119.541664	83.047829	11.676695	-22.8	-9.5
29	APR	1982	1359	119.582642	83.040703	11.651412	-22.1	-9.4
29	APR	1982	1400	119.583336	83.040588	11.650996	-22.1	-9.4
29	APR	1982	1437	119.609032	83.036217	11.636106	-21.4	-8.7
29	APR	1982	1500	119.625000	83.033607	11.627411	-20.6	-8.3
29	APR	1982	1549	119.659027	83.028374	11.610233	-19.1	-7.5
29	APR	1982	1600	119.666664	83.027245	11.606586	-18.8	-7.4
29	APR	1982	1622	119.681946	83.025032	11.599437	-18.4	-7.3
29	APR	1982	1700	119.708336	83.021347	11.587318	-17.5	-7.1
29	APR	1982	1739	119.735413	83.017807	11.575528	-16.0	-6.5
29	APR	1982	1800	119.750000	83.016060	11.569649	-14.8	-6.1
29	APR	1982	1835	119.774300	83.013466	11.560362	-12.5	-5.9
29	APR	1982	1900	119.791664	83.011902	11.553791	-10.7	-5.9
29	APR	1982	1929	119.811806	83.010338	11.546289	-9.3	-5.7
29	APR	1982	2000	119.833336	83.008850	11.538496	-8.7	-5.7
29	APR	1982	2020	119.847221	83.007912	11.533350	-8.7	-5.9
29	APR	1982	2100	119.875000	83.006012	11.522276	-8.9	-6.6
29	APR	1982	2139	119.902077	83.004143	11.510641	-8.8	-6.8
29	APR	1982	2200	119.916664	83.003151	11.504368	-8.7	-6.7
29	APR	1982	2300	119.958336	83.000221	11.486884	-9.9	-6.6
29	APR	1982	2325	119.975700	82.998810	11.479486	-11.0	-6.8
30	APR	1982	0	120.000000	82.996605	11.468308	-12.1	-7.8
30	APR	1982	56	120.038887	82.992920	11.446490	-11.9	-9.8
30	APR	1982	100	120.041664	82.992668	11.444752	-11.8	-9.9
30	APR	1982	112	120.049995	82.991913	11.439414	-11.6	-10.2
30	APR	1982	137	120.067360	82.990372	11.427899	-11.3	-10.5
30	APR	1982	200	120.083336	82.988976	11.417282	-11.1	-10.3
30	APR	1982	244	120.113892	82.986420	11.397757	-10.1	-9.7
30	APR	1982	300	120.125000	82.985573	11.391017	-9.5	-9.4
30	APR	1982	324	120.141663	82.984383	11.381363	-8.9	-8.8
30	APR	1982	400	120.166664	82.982712	11.368242	-8.3	-7.6
30	APR	1982	432	120.188896	82.981293	11.358367	-8.1	-6.3
30	APR	1982	500	120.208336	82.980087	11.351327	-7.9	-5.0
30	APR	1982	600	120.250000	82.977524	11.341978	-8.1	-1.9
30	APR	1982	620	120.263885	82.976631	11.340779	-8.5	-0.8
30	APR	1982	700	120.291664	82.974670	11.341148	-9.8	1.1
30	APR	1982	800	120.333336	82.971046	11.345338	-12.6	1.3
30	APR	1982	808	120.338890	82.970497	11.345747	-13.0	1.0
30	APR	1982	845	120.364586	82.967751	11.345922	-14.2	-1.0
30	APR	1982	900	120.375000	82.966599	11.344854	-14.4	-2.2
30	APR	1982	1000	120.416664	82.961823	11.333581	-15.1	-6.0
30	APR	1982	1036	120.441673	82.958786	11.323133	-16.3	-6.9
30	APR	1982	1100	120.458336	82.956589	11.316059	-17.6	-6.4
30	APR	1982	1146	120.490273	82.951828	11.305309	-20.7	-3.9
30	APR	1982	1200	120.500000	82.950218	11.303266	-21.7	-2.8
30	APR	1982	1224	120.516663	82.947334	11.301055	-22.7	-1.5
30	APR	1982	1300	120.541664	82.942909	11.299133	-22.4	-1.2
30	APR	1982	1400	120.583336	82.936058	11.293714	-19.5	-3.2
30	APR	1982	1500	120.625000	82.930168	11.282912	-17.2	-4.6
30	APR	1982	1526	120.643059	82.927780	11.277711	-16.8	-4.5
30	APR	1982	1600	120.666664	82.924736	11.271245	-16.3	-4.1
30	APR	1982	1700	120.708336	82.919716	11.261550	-14.2	-3.2
30	APR	1982	1716	120.719444	82.918526	11.259390	-13.2	-3.0
30	APR	1982	1800	120.750000	82.915726	11.254558	-10.2	-2.0
30	APR	1982	1900	120.791664	82.913116	11.251662	-6.0	-0.1
30	APR	1982	1906	120.795837	82.912933	11.251669	-5.6	0.1
30	APR	1982	2000	120.833336	82.911652	11.253821	-3.7	1.3
30	APR	1982	2030	120.854164	82.911072	11.255835	-3.6	1.5
30	APR	1982	2100	120.875000	82.910484	11.257624	-3.7	1.1
30	APR	1982	2118	120.887505	82.910126	11.258305	-3.7	0.6
30	APR	1982	2200	120.916664	82.909264	11.258446	-3.8	-0.4
30	APR	1982	2216	120.927773	82.908928	11.258039	-3.9	-0.7
30	APR	1982	2300	120.958336	82.907982	11.255707	-4.1	-1.7
1	MAY	1982	0	121.000000	82.906631	11.247701	-4.1	-4.9
1	MAY	1982	2	121.001396	82.906593	11.247266	-4.0	-5.0
1	MAY	1982	33	121.022919	82.905937	11.238721	-3.7	-7.6

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
1	MAY	1982	100	121.041664	82.905411	11.228367	-3.6	-9.9
1	MAY	1982	149	121.075691	82.904312	11.204221	-5.1	-12.1
1	MAY	1982	200	121.083336	82.903992	11.198388	-5.8	-12.2
1	MAY	1982	221	121.097923	82.903275	11.187211	-6.9	-12.1
1	MAY	1982	238	121.109718	82.902611	11.178266	-7.6	-11.9
1	MAY	1982	300	121.125000	82.901657	11.166984	-8.3	-11.5
1	MAY	1982	335	121.149300	82.900078	11.149834	-8.1	-11.0
1	MAY	1982	400	121.166664	82.899055	11.138077	-7.0	-10.6
1	MAY	1982	409	121.172913	82.898720	11.133946	-6.5	-10.5
1	MAY	1982	426	121.184723	82.898163	11.126295	-5.6	-10.2
1	MAY	1982	500	121.208336	82.897270	11.111647	-4.2	-9.6
1	MAY	1982	600	121.250000	82.896080	11.087358	-3.6	-9.1
1	MAY	1982	614	121.259727	82.895805	11.081774	-3.7	-9.1
1	MAY	1982	700	121.291664	82.894775	11.063785	-4.6	-8.6
1	MAY	1982	746	121.323608	82.893456	11.047718	-6.1	-7.3
1	MAY	1982	800	121.333336	82.892975	11.043378	-6.6	-6.9
1	MAY	1982	801	121.334023	82.892937	11.043078	-6.6	-6.9
1	MAY	1982	852	121.369446	82.890892	11.028758	-8.0	-6.4
1	MAY	1982	900	121.375000	82.890541	11.026517	-8.2	-6.5
1	MAY	1982	1000	121.416664	82.887650	11.008353	-9.8	-7.5
1	MAY	1982	1037	121.442360	82.885551	10.995683	-11.2	-8.2
1	MAY	1982	1100	121.458336	82.884102	10.987288	-12.1	-8.6
1	MAY	1982	1200	121.500000	82.879898	10.963795	-13.5	-9.4
1	MAY	1982	1221	121.514587	82.878357	10.955086	-13.7	-9.7
1	MAY	1982	1300	121.541664	82.875458	10.938277	-13.9	-10.2
1	MAY	1982	1400	121.583336	82.870895	10.910612	-14.3	-11.1
1	MAY	1982	1406	121.587502	82.870430	10.907701	-14.3	-11.2
1	MAY	1982	1500	121.625000	82.866219	10.880099	-14.3	-12.4
1	MAY	1982	1551	121.660423	82.862335	10.851515	-13.8	-13.3
1	MAY	1982	1600	121.666664	82.861671	10.846294	-13.7	-13.4
1	MAY	1982	1652	121.702782	82.857834	10.816093	-13.9	-13.0
1	MAY	1982	1700	121.708336	82.857231	10.811605	-14.1	-12.8
1	MAY	1982	1800	121.750000	82.852570	10.779549	-14.3	-12.1
1	MAY	1982	1842	121.779167	82.849411	10.757403	-13.3	-12.4
1	MAY	1982	1900	121.791664	82.848145	10.747627	-12.6	-12.7
1	MAY	1982	2000	121.833336	82.844475	10.713783	-9.8	-13.2
1	MAY	1982	2100	121.875000	82.841705	10.679296	-7.6	-13.4
1	MAY	1982	2107	121.879860	82.841415	10.675241	-7.4	-13.4
1	MAY	1982	2200	121.916664	82.839371	10.643228	-7.3	-15.0
1	MAY	1982	2254	121.954163	82.837097	10.604556	-8.1	-18.3
1	MAY	1982	2300	121.958336	82.836838	10.599762	-8.2	-18.7
2	MAY	1982	0	122.000000	82.834480	10.548931	-5.2	-19.5
2	MAY	1982	0	122.000000	82.834480	10.548931	-5.2	-19.5
2	MAY	1982	100	122.041664	82.833694	10.502194	0.0	-16.3
2	MAY	1982	200	122.083336	82.833992	10.463498	0.6	-14.0
2	MAY	1982	226	122.101387	82.833977	10.447842	-0.8	-13.9
2	MAY	1982	300	122.125000	82.833626	10.427280	-3.0	-14.2
2	MAY	1982	400	122.166664	82.832153	10.389211	-5.6	-15.1
2	MAY	1982	412	122.174995	82.831779	10.381350	-5.8	-15.2
2	MAY	1982	500	122.208336	82.830215	10.350627	-6.2	-13.8
2	MAY	1982	520	122.222221	82.829552	10.339329	-6.1	-12.3
2	MAY	1982	534	122.231941	82.829094	10.332180	-6.0	-11.3
2	MAY	1982	600	122.250000	82.828255	10.320593	-5.9	-9.4
2	MAY	1982	700	122.291664	82.826294	10.300026	-6.6	-7.2
2	MAY	1982	708	122.297218	82.826004	10.297534	-6.8	-7.2
2	MAY	1982	723	122.307640	82.825432	10.292839	-7.2	-7.3
2	MAY	1982	744	122.322227	82.824585	10.286105	-7.8	-7.6
2	MAY	1982	800	122.333336	82.823891	10.280766	-8.2	-7.9
2	MAY	1982	856	122.372223	82.821152	10.261451	-10.1	-7.7
2	MAY	1982	900	122.375000	82.820930	10.260131	-10.3	-7.6
2	MAY	1982	929	122.395142	82.819229	10.251034	-11.4	-7.0
2	MAY	1982	1000	122.416664	82.817245	10.242044	-12.3	-6.5
2	MAY	1982	1044	122.447227	82.814178	10.230128	-13.5	-6.1
2	MAY	1982	1100	122.458336	82.812988	10.225966	-13.9	-6.0
2	MAY	1982	1200	122.500000	82.808258	10.210823	-15.0	-5.8
2	MAY	1982	1232	122.522224	82.805634	10.202898	-15.4	-5.7
2	MAY	1982	1250	122.534721	82.804115	10.198556	-15.8	-5.5
2	MAY	1982	1300	122.541664	82.803253	10.196198	-16.0	-5.4

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
2	MAY	1982	1400	122.583336	82.797768	10.182405	-17.9	-5.5
2	MAY	1982	1440	122.611115	82.793732	10.172473	-19.4	-6.1
2	MAY	1982	1500	122.625000	82.791603	10.167089	-20.1	-6.4
2	MAY	1982	1600	122.666664	82.784737	10.150626	-22.2	-5.9
2	MAY	1982	1630	122.687500	82.781059	10.143616	-23.0	-5.0
2	MAY	1982	1700	122.708336	82.777298	10.137504	-23.2	-4.6
2	MAY	1982	1753	122.745140	82.770981	10.125112	-20.0	-7.2
2	MAY	1982	1800	122.750000	82.770233	10.122863	-19.3	-7.8
2	MAY	1982	1900	122.791664	82.765038	10.095570	-12.8	-13.3
2	MAY	1982	2000	122.833336	82.761757	10.056981	-8.1	-16.0
2	MAY	1982	2009	122.839577	82.761375	10.050827	-7.6	-16.0
2	MAY	1982	2100	122.875000	82.759544	10.016386	-5.9	-15.3
2	MAY	1982	2200	122.916664	82.757851	9.979946	-4.6	-13.0
2	MAY	1982	2300	122.958336	82.756592	9.949545	-3.1	-10.8
3	MAY	1982	0	123.000000	82.755920	9.923829	-1.0	-9.4
3	MAY	1982	100	123.041664	82.755867	9.900760	0.5	-8.6
3	MAY	1982	136	123.066673	82.755997	9.887948	0.7	-8.0
3	MAY	1982	200	123.083336	82.756081	9.880013	0.5	-7.4
3	MAY	1982	245	123.114586	82.756081	9.867043	-0.7	-5.9
3	MAY	1982	300	123.125000	82.755997	9.863425	-1.3	-5.3
3	MAY	1982	304	123.127777	82.755966	9.862524	-1.4	-5.2
3	MAY	1982	324	123.141663	82.755775	9.858418	-2.1	-4.4
3	MAY	1982	400	123.166664	82.755287	9.852588	-2.8	-3.2
3	MAY	1982	450	123.201385	82.754448	9.847241	-3.3	-2.0
3	MAY	1982	500	123.208336	82.754272	9.846436	-3.4	-1.8
3	MAY	1982	512	123.216667	82.754051	9.845551	-3.5	-1.6
3	MAY	1982	600	123.250000	82.753098	9.842379	-3.9	-1.7
3	MAY	1982	700	123.291664	82.751694	9.836924	-4.8	-2.6
3	MAY	1982	700	123.291664	82.751694	9.836924	-4.8	-2.6
3	MAY	1982	800	123.333336	82.749954	9.830215	-5.8	-2.1
3	MAY	1982	806	123.337502	82.749763	9.829700	-5.9	-1.9
3	MAY	1982	900	123.375000	82.747917	9.827268	-6.7	-0.3
3	MAY	1982	954	123.412498	82.745819	9.827452	-7.7	0.1
3	MAY	1982	1000	123.416664	82.745567	9.827461	-7.8	0.0
3	MAY	1982	1100	123.458336	82.742798	9.825653	-9.3	-1.7
3	MAY	1982	1142	123.487495	82.740555	9.821286	-10.5	-3.1
3	MAY	1982	1200	123.500000	82.739502	9.818789	-11.0	-3.4
3	MAY	1982	1226	123.518059	82.737900	9.814852	-11.8	-3.6
3	MAY	1982	1300	123.541664	82.735687	9.809784	-12.1	-3.3
3	MAY	1982	1329	123.561806	82.733810	9.805943	-11.8	-2.9
3	MAY	1982	1400	123.583336	82.731842	9.802155	-11.8	-2.9
3	MAY	1982	1416	123.594444	82.730804	9.800117	-12.1	-3.1
3	MAY	1982	1500	123.625000	82.727776	9.793530	-13.6	-4.1
3	MAY	1982	1600	123.666664	82.723015	9.781439	-15.4	-5.2
3	MAY	1982	1606	123.670837	82.722511	9.780105	-15.5	-5.2
3	MAY	1982	1700	123.708336	82.717880	9.767952	-16.1	-5.2
3	MAY	1982	1756	123.747223	82.713043	9.755820	-15.6	-5.3
3	MAY	1982	1800	123.750000	82.712708	9.754911	-15.5	-5.4
3	MAY	1982	1850	123.784721	82.708809	9.741576	-12.9	-7.6
3	MAY	1982	1900	123.791664	82.708130	9.738181	-12.1	-8.4
3	MAY	1982	1946	123.823608	82.705536	9.719258	-8.8	-10.7
3	MAY	1982	2000	123.833336	82.704910	9.712788	-7.8	-11.1
3	MAY	1982	2100	123.875000	82.702950	9.684063	-4.5	-11.0
3	MAY	1982	2200	123.916664	82.701881	9.658775	-2.3	-8.7
3	MAY	1982	2300	123.958336	82.701393	9.639812	-0.8	-6.2
4	MAY	1982	0	124.000000	82.701294	9.626398	0.1	-4.5
4	MAY	1982	100	124.041664	82.701431	9.616027	0.7	-3.8
4	MAY	1982	113	124.050690	82.701485	9.613922	0.7	-3.8
4	MAY	1982	200	124.083336	82.701683	9.606383	0.8	-3.8
4	MAY	1982	300	124.125000	82.701912	9.596847	0.5	-3.7
4	MAY	1982	400	124.166664	82.701935	9.587937	-0.4	-3.3
4	MAY	1982	449	124.200691	82.701729	9.581639	-1.2	-2.8
4	MAY	1982	500	124.208336	82.701653	9.580361	-1.4	-2.7
4	MAY	1982	600	124.250000	82.701050	9.573978	-2.2	-2.4
4	MAY	1982	637	124.275696	82.700569	9.570100	-2.5	-2.5
4	MAY	1982	700	124.291664	82.700249	9.567574	-2.7	-2.6
4	MAY	1982	800	124.333336	82.699310	9.560441	-3.0	-2.9
4	MAY	1982	900	124.375000	82.698257	9.552678	-3.5	-3.1

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
4	MAY	1982	1000	124.416664	82.697044	9.544817	-4.1	-3.0
4	MAY	1982	1100	124.458336	82.695610	9.537137	-4.8	-3.0
4	MAY	1982	1200	124.500000	82.693909	9.528835	-5.7	-3.7
4	MAY	1982	1204	124.502777	82.693787	9.528208	-5.7	-3.7
4	MAY	1982	1300	124.541664	82.691956	9.517518	-6.3	-5.5
4	MAY	1982	1353	124.578468	82.690048	9.502330	-7.1	-8.1
4	MAY	1982	1400	124.583336	82.689774	9.499868	-7.2	-8.5
4	MAY	1982	1500	124.625000	82.687126	9.474971	-9.5	-10.8
4	MAY	1982	1543	124.654854	82.684586	9.454596	-12.5	-11.4
4	MAY	1982	1600	124.666664	82.683380	9.446344	-13.8	-11.5
4	MAY	1982	1700	124.708336	82.678230	9.416548	-17.4	-12.2
4	MAY	1982	1733	124.731255	82.675064	9.398843	-17.7	-13.4
4	MAY	1982	1800	124.750000	82.672546	9.382536	-16.4	-15.3
4	MAY	1982	1800	124.750000	82.672546	9.382536	-16.4	-15.3
4	MAY	1982	1900	124.791664	82.668007	9.336639	-11.4	-21.0
4	MAY	1982	1923	124.807640	82.666710	9.315123	-9.5	-23.2
4	MAY	1982	2000	124.833336	82.665062	9.276404	-7.3	-26.2
4	MAY	1982	2100	124.875000	82.662964	9.206322	-6.0	-28.7
4	MAY	1982	2200	124.916664	82.661011	9.133173	-6.0	-28.8
4	MAY	1982	2300	124.958336	82.659203	9.061809	-4.9	-27.4
5	MAY	1982	0	125.000000	82.658051	8.994826	-1.8	-25.4
5	MAY	1982	100	125.041664	82.658218	8.933028	3.2	-23.4
5	MAY	1982	200	125.083336	82.660187	8.875905	9.0	-21.8
5	MAY	1982	300	125.125000	82.663879	8.822131	13.3	-20.8
5	MAY	1982	400	125.166664	82.668320	8.770068	12.9	-20.4
5	MAY	1982	426	125.184723	82.670006	8.747659	10.9	-20.4
5	MAY	1982	440	125.194450	82.670784	8.735589	9.6	-20.4
5	MAY	1982	500	125.208336	82.671707	8.718360	7.4	-20.4
5	MAY	1982	600	125.250000	82.673256	8.667850	2.9	-19.0
5	MAY	1982	614	125.259727	82.673462	8.656758	2.4	-18.4
5	MAY	1982	700	125.291664	82.673981	8.623081	2.2	-16.1
5	MAY	1982	800	125.333336	82.674950	8.586048	4.1	-13.2
5	MAY	1982	900	125.375000	82.676659	8.555329	6.3	-11.3
5	MAY	1982	1000	125.416664	82.678902	8.527353	7.1	-11.0
5	MAY	1982	1100	125.458336	82.681068	8.498774	5.9	-11.6
5	MAY	1982	1119	125.471527	82.681641	8.489349	5.3	-11.8
5	MAY	1982	1140	125.486115	82.682198	8.478721	4.5	-12.1
5	MAY	1982	1200	125.500000	82.682640	8.468443	3.8	-12.2
5	MAY	1982	1300	125.541664	82.683693	8.436857	3.0	-12.7
5	MAY	1982	1303	125.543755	82.683739	8.435246	3.0	-12.7
5	MAY	1982	1330	125.562500	82.684181	8.420592	3.0	-13.0
5	MAY	1982	1400	125.583336	82.684631	8.403852	2.5	-13.4
5	MAY	1982	1448	125.616669	82.685150	8.376047	1.5	-13.9
5	MAY	1982	1500	125.625000	82.685242	8.368942	1.2	-14.0
5	MAY	1982	1520	125.638885	82.685341	8.356975	0.6	-14.2
5	MAY	1982	1600	125.666664	82.685341	8.332656	-0.5	-14.4
5	MAY	1982	1633	125.689583	82.685188	8.312546	-1.2	-14.4
5	MAY	1982	1700	125.708336	82.684967	8.296082	-1.8	-14.5
5	MAY	1982	1710	125.715279	82.684868	8.289922	-2.1	-14.6
5	MAY	1982	1800	125.750000	82.684052	8.258101	-4.1	-15.6
5	MAY	1982	1900	125.791664	82.682266	8.216870	-6.7	-16.6
5	MAY	1982	2000	125.833336	82.679855	8.174781	-7.8	-16.2
5	MAY	1982	2004	125.836113	82.679680	8.172038	-7.8	-16.2
5	MAY	1982	2100	125.875000	82.677391	8.134961	-7.2	-15.1
5	MAY	1982	2150	125.909721	82.675545	8.104036	-6.6	-14.0
5	MAY	1982	2200	125.916664	82.675186	8.098170	-6.6	-13.7
5	MAY	1982	2206	125.920837	82.674973	8.094709	-6.5	-13.5
5	MAY	1982	2300	125.958336	82.673035	8.066107	-6.9	-11.3
5	MAY	1982	2336	125.983337	82.671669	8.050169	-7.0	-9.7
6	MAY	1982	0	126.000000	82.670776	8.040851	-6.7	-8.9
6	MAY	1982	28	126.019440	82.669830	8.030922	-5.7	-8.1
6	MAY	1982	100	126.041664	82.668976	8.020041	-4.2	-8.1
6	MAY	1982	123	126.057640	82.668526	8.011942	-3.0	-8.6
6	MAY	1982	200	126.083336	82.668060	7.997632	-1.8	-9.8
6	MAY	1982	300	126.125000	82.667534	7.969865	-1.9	-12.0
6	MAY	1982	309	126.131248	82.667435	7.965236	-2.1	-12.3
6	MAY	1982	400	126.166664	82.666809	7.936878	-2.1	-14.0
6	MAY	1982	404	126.169441	82.666763	7.934508	-2.0	-14.1

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
6	MAY	1982	455	126.204865	82.666328	7.902218	-1.3	-16.0
6	MAY	1982	500	126.208336	82.666298	7.898821	-1.2	-16.2
6	MAY	1982	535	126.232635	82.666100	7.874063	-0.7	-17.1
6	MAY	1982	552	126.244446	82.666046	7.861752	-0.3	-17.2
6	MAY	1982	600	126.250000	82.666039	7.855955	-0.1	-17.2
6	MAY	1982	700	126.291664	82.666161	7.814189	0.6	-15.2
6	MAY	1982	723	126.307640	82.666237	7.800161	0.6	-13.7
6	MAY	1982	740	126.319450	82.666290	7.790661	0.7	-12.7
6	MAY	1982	800	126.333336	82.666374	7.780310	0.9	-11.8
6	MAY	1982	826	126.351387	82.666519	7.767780	1.2	-11.1
6	MAY	1982	850	126.368050	82.666687	7.756723	1.4	-10.7
6	MAY	1982	900	126.375000	82.666756	7.752215	1.3	-10.6
6	MAY	1982	911	126.382637	82.666840	7.747331	1.3	-10.4
6	MAY	1982	1000	126.416664	82.667152	7.727355	1.1	-8.5
6	MAY	1982	1011	126.424309	82.667213	7.723557	1.1	-7.8
6	MAY	1982	1036	126.441673	82.667358	7.716134	1.0	-6.2
6	MAY	1982	1059	126.457642	82.667465	7.710874	0.8	-4.6
6	MAY	1982	1100	126.458336	82.667473	7.710681	0.8	-4.6
6	MAY	1982	1155	126.496529	82.667641	7.703955	0.4	-1.5
6	MAY	1982	1200	126.500000	82.667656	7.703668	0.4	-1.3
6	MAY	1982	1222	126.515282	82.667702	7.702886	0.4	-0.5
6	MAY	1982	1247	126.532646	82.667763	7.702621	0.4	-0.1
6	MAY	1982	1300	126.541664	82.667793	7.702567	0.4	-0.1
6	MAY	1982	1307	126.546532	82.667801	7.702535	0.4	-0.1
6	MAY	1982	1340	126.569450	82.667862	7.702142	0.2	-0.6
6	MAY	1982	1400	126.583336	82.667877	7.701445	0.0	-1.1
6	MAY	1982	1407	126.588196	82.667870	7.701087	0.0	-1.3
6	MAY	1982	1457	126.622917	82.667763	7.696641	-0.9	-2.9
6	MAY	1982	1500	126.625000	82.667747	7.696262	-1.0	-3.0
6	MAY	1982	1525	126.642365	82.667564	7.692646	-1.6	-3.8
6	MAY	1982	1553	126.661804	82.667259	7.687827	-2.5	-4.3
6	MAY	1982	1600	126.666664	82.667160	7.686533	-2.7	-4.4
6	MAY	1982	1647	126.699310	82.666275	7.677153	-4.3	-5.0
6	MAY	1982	1700	126.708336	82.665955	7.674372	-4.8	-5.1
6	MAY	1982	1800	126.750000	82.664238	7.659838	-5.3	-6.6
6	MAY	1982	1807	126.754860	82.664032	7.657852	-5.2	-6.8
6	MAY	1982	1837	126.775696	82.663216	7.648541	-4.8	-7.8
6	MAY	1982	1900	126.791664	82.662628	7.640651	-4.6	-8.4
6	MAY	1982	1952	126.827782	82.661423	7.621354	-3.9	-8.9
6	MAY	1982	2000	126.833336	82.661255	7.618353	-3.7	-8.9
6	MAY	1982	2027	126.852081	82.660751	7.608449	-3.3	-8.4
6	MAY	1982	2041	126.861809	82.660507	7.603581	-3.1	-8.0
6	MAY	1982	2100	126.875000	82.660194	7.597413	-3.0	-7.3
6	MAY	1982	2114	126.884727	82.659966	7.593271	-3.0	-6.7
6	MAY	1982	2200	126.916664	82.659210	7.582689	-3.2	-4.1
6	MAY	1982	2300	126.958336	82.658150	7.576546	-3.1	-1.1
6	MAY	1982	2301	126.959023	82.658127	7.576502	-3.1	-1.0
7	MAY	1982	0	127.000000	82.657356	7.576005	-1.6	0.4
7	MAY	1982	5	127.003471	82.657318	7.576089	-1.4	0.4
7	MAY	1982	49	127.034027	82.657150	7.577172	-0.1	0.6
7	MAY	1982	100	127.041664	82.657150	7.577466	0.1	0.6
7	MAY	1982	153	127.078468	82.657265	7.578572	0.3	0.3
7	MAY	1982	200	127.083336	82.657272	7.578648	0.3	0.2
7	MAY	1982	236	127.108337	82.657257	7.578584	-0.5	-0.4
7	MAY	1982	300	127.125000	82.657158	7.577941	-1.1	-0.9
7	MAY	1982	341	127.153473	82.656815	7.575436	-2.0	-2.0
7	MAY	1982	400	127.166664	82.656593	7.573628	-2.3	-2.5
7	MAY	1982	500	127.208336	82.655724	7.565810	-3.0	-3.4
7	MAY	1982	529	127.228477	82.655220	7.561550	-3.4	-3.5
7	MAY	1982	600	127.250000	82.654617	7.557049	-3.8	-3.4
7	MAY	1982	700	127.291664	82.653198	7.549037	-5.0	-3.0
7	MAY	1982	717	127.303474	82.652725	7.546958	-5.3	-2.8
7	MAY	1982	758	127.331940	82.651474	7.542069	-5.9	-2.9
7	MAY	1982	800	127.333336	82.651413	7.541823	-5.9	-2.9
7	MAY	1982	900	127.375000	82.649513	7.534022	-5.7	-3.2
7	MAY	1982	944	127.405556	82.648232	7.528399	-5.0	-2.8
7	MAY	1982	1000	127.416664	82.647812	7.526601	-4.7	-2.5
7	MAY	1982	1100	127.458336	82.646461	7.521524	-3.6	-1.5

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
7	MAY	1982	1130	127.479164	82.645920	7.519953	-3.1	-1.1
7	MAY	1982	1156	127.497223	82.645515	7.518884	-2.8	-0.9
7	MAY	1982	1200	127.500000	82.645454	7.518726	-2.7	-0.9
7	MAY	1982	1244	127.530556	82.644829	7.516982	-2.6	-1.0
7	MAY	1982	1300	127.541664	82.644600	7.516339	-2.7	-1.0
7	MAY	1982	1315	127.552086	82.644379	7.515736	-2.7	-1.0
7	MAY	1982	1400	127.583336	82.643730	7.514054	-2.7	-0.8
7	MAY	1982	1434	127.606941	82.643250	7.513128	-2.6	-0.5
7	MAY	1982	1500	127.625000	82.642891	7.512687	-2.5	-0.3
7	MAY	1982	1501	127.625694	82.642876	7.512674	-2.5	-0.3
7	MAY	1982	1600	127.666664	82.641998	7.511614	-3.3	-0.9
7	MAY	1982	1601	127.667358	82.641983	7.511576	-3.3	-0.9
7	MAY	1982	1624	127.683327	82.641525	7.510365	-4.0	-1.6
7	MAY	1982	1700	127.708336	82.640663	7.506801	-4.9	-3.2
7	MAY	1982	1716	127.719444	82.640221	7.504320	-5.2	-4.1
7	MAY	1982	1800	127.750000	82.638901	7.494371	-5.8	-6.5
7	MAY	1982	1814	127.759727	82.638458	7.490336	-5.9	-7.2
7	MAY	1982	1900	127.791664	82.636978	7.475072	-5.9	-8.3
7	MAY	1982	1902	127.793060	82.636917	7.474374	-5.8	-8.3
7	MAY	1982	1932	127.813896	82.635986	7.463962	-5.6	-8.1
7	MAY	1982	2000	127.833336	82.635147	7.454591	-5.4	-7.8
7	MAY	1982	2004	127.836113	82.635033	7.453291	-5.4	-7.7
7	MAY	1982	2100	127.875000	82.633507	7.436228	-4.6	-6.7
7	MAY	1982	2118	127.887505	82.633072	7.431251	-4.3	-6.4
7	MAY	1982	2200	127.916664	82.632172	7.420822	-3.7	-5.4
7	MAY	1982	2208	127.922218	82.632011	7.419060	-3.6	-5.1
7	MAY	1982	2300	127.958336	82.631096	7.409354	-2.9	-3.8
7	MAY	1982	2304	127.961113	82.631035	7.408718	-2.8	-3.7
8	MAY	1982	0	128.000000	82.630302	7.401108	-2.0	-2.8
8	MAY	1982	51	128.035416	82.629875	7.395984	-1.2	-2.0
8	MAY	1982	100	128.041672	82.629822	7.395250	-1.0	-1.9
8	MAY	1982	130	128.062500	82.629684	7.393156	-0.7	-1.5
8	MAY	1982	200	128.083328	82.629593	7.391511	-0.5	-1.2
8	MAY	1982	237	128.109024	82.629478	7.389679	-0.7	-1.3
8	MAY	1982	300	128.125000	82.629372	7.388357	-1.0	-1.5
8	MAY	1982	318	128.137497	82.629257	7.387140	-1.3	-1.7
8	MAY	1982	400	128.166672	82.628876	7.383712	-2.0	-2.1
8	MAY	1982	424	128.183334	82.628593	7.381535	-2.4	-2.2
8	MAY	1982	500	128.208328	82.628075	7.378039	-2.9	-2.4
8	MAY	1982	506	128.212509	82.627983	7.377413	-3.0	-2.5
8	MAY	1982	600	128.250000	82.626945	7.371039	-4.2	-3.2
8	MAY	1982	654	128.287491	82.625450	7.363132	-6.0	-3.8
8	MAY	1982	700	128.291672	82.625252	7.362176	-6.2	-3.8
8	MAY	1982	730	128.312500	82.624161	7.357202	-7.2	-4.1
8	MAY	1982	754	128.329163	82.623184	7.352911	-7.7	-4.4
8	MAY	1982	800	128.333328	82.622932	7.351775	-7.8	-4.6
8	MAY	1982	900	128.375000	82.620239	7.339280	-8.7	-5.2
8	MAY	1982	918	128.387497	82.619377	7.335355	-8.9	-5.2
8	MAY	1982	939	128.402084	82.618355	7.330783	-9.1	-5.2
8	MAY	1982	1000	128.416672	82.617325	7.326235	-9.1	-5.1
8	MAY	1982	1100	128.458328	82.614532	7.313702	-7.8	-4.7
8	MAY	1982	1124	128.474991	82.613586	7.309138	-6.9	-4.3
8	MAY	1982	1200	128.500000	82.612358	7.303178	-5.9	-3.5
8	MAY	1982	1221	128.514587	82.611694	7.300405	-5.7	-2.8
8	MAY	1982	1300	128.541672	82.610550	7.296319	-5.2	-2.4
8	MAY	1982	1308	128.547226	82.610321	7.295503	-5.1	-2.5
8	MAY	1982	1400	128.583328	82.608994	7.289557	-4.3	-3.0
8	MAY	1982	1411	128.590973	82.608742	7.288125	-4.2	-3.2
8	MAY	1982	1500	128.625000	82.607697	7.281089	-3.8	-3.6
8	MAY	1982	1600	128.666672	82.606415	7.271534	-4.3	-4.0
8	MAY	1982	1700	128.708328	82.604851	7.260446	-5.4	-4.9
8	MAY	1982	1751	128.743759	82.603294	7.248926	-5.7	-5.9
8	MAY	1982	1800	128.750000	82.603012	7.246662	-5.7	-6.1
8	MAY	1982	1813	128.759018	82.602615	7.243266	-5.6	-6.4
8	MAY	1982	1900	128.791672	82.601242	7.229832	-5.2	-7.2
8	MAY	1982	1941	128.820145	82.600113	7.216975	-5.1	-7.7
8	MAY	1982	1959	128.832642	82.599617	7.211124	-5.1	-7.8
8	MAY	1982	2000	128.833328	82.599594	7.210799	-5.1	-7.8

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
8	MAY	1982	2100	128.875000	82.597961	7.191234	-4.9	-7.6
8	MAY	1982	2200	128.916672	82.596428	7.173619	-4.4	-6.4
8	MAY	1982	2300	128.958328	82.595139	7.159718	-3.5	-4.7
9	MAY	1982	0	129.000000	82.594200	7.150123	-2.3	-3.0
9	MAY	1982	100	129.041672	82.593628	7.144311	-1.3	-1.7
9	MAY	1982	108	129.047226	82.593575	7.143749	-1.1	-1.6
9	MAY	1982	200	129.083328	82.593330	7.140862	-0.7	-1.1
9	MAY	1982	256	129.122223	82.593094	7.138035	-1.0	-1.4
9	MAY	1982	300	129.125000	82.593071	7.137798	-1.0	-1.4
9	MAY	1982	400	129.166672	82.592590	7.133199	-2.0	-2.3
9	MAY	1982	444	129.197220	82.592033	7.128525	-2.7	-2.7
9	MAY	1982	500	129.208328	82.591789	7.126676	-2.9	-2.8
9	MAY	1982	501	129.209030	82.591774	7.126559	-2.9	-2.8
9	MAY	1982	600	129.250000	82.590759	7.119694	-3.4	-2.7
9	MAY	1982	632	129.272232	82.590164	7.116190	-3.5	-2.6
9	MAY	1982	700	129.291672	82.589607	7.113117	-3.9	-2.7
9	MAY	1982	800	129.333328	82.588074	7.104994	-5.8	-4.1
9	MAY	1982	820	129.347214	82.587387	7.101291	-6.8	-4.8
9	MAY	1982	900	129.375000	82.585785	7.092239	-7.8	-5.9
9	MAY	1982	945	129.406250	82.583946	7.080685	-6.9	-6.2
9	MAY	1982	1000	129.416672	82.583412	7.076864	-6.3	-6.0
9	MAY	1982	1100	129.458328	82.581764	7.062845	-4.1	-5.0
9	MAY	1982	1131	129.479858	82.581131	7.056813	-3.5	-4.3
9	MAY	1982	1158	129.498611	82.580627	7.052457	-3.3	-3.4
9	MAY	1982	1200	129.500000	82.580597	7.052171	-3.3	-3.4
9	MAY	1982	1300	129.541672	82.579590	7.045737	-2.7	-1.9
9	MAY	1982	1317	129.553482	82.579361	7.044447	-2.4	-1.7
9	MAY	1982	1400	129.583328	82.578918	7.041624	-1.4	-1.6
9	MAY	1982	1500	129.625000	82.578606	7.037075	-0.8	-2.1
9	MAY	1982	1503	129.627090	82.578590	7.036806	-0.8	-2.2
9	MAY	1982	1538	129.651382	82.578438	7.033411	-1.0	-2.4
9	MAY	1982	1600	129.666672	82.578300	7.031174	-1.3	-2.4
9	MAY	1982	1649	129.700699	82.577881	7.026137	-1.9	-2.5
9	MAY	1982	1700	129.708328	82.577759	7.024968	-2.0	-2.6
9	MAY	1982	1800	129.750000	82.577080	7.017445	-1.9	-3.7
9	MAY	1982	1900	129.791672	82.576660	7.005466	-0.7	-5.9
9	MAY	1982	1911	129.799301	82.576622	7.002679	-0.4	-6.3
9	MAY	1982	2000	129.833328	82.576599	6.988675	0.0	-7.1
9	MAY	1982	2022	129.848618	82.576591	6.982178	-0.1	-7.0
9	MAY	1982	2056	129.872223	82.576576	6.972441	0.1	-6.7
9	MAY	1982	2100	129.875000	82.576584	6.971326	0.2	-6.7
9	MAY	1982	2200	129.916672	82.576836	6.955486	1.5	-6.0
9	MAY	1982	2210	129.923615	82.576920	6.953005	1.7	-5.9
9	MAY	1982	2300	129.958328	82.577568	6.941044	3.1	-5.7
9	MAY	1982	2357	129.997910	82.578888	6.927246	5.6	-5.9
10	MAY	1982	0	130.000000	82.578979	6.926500	5.8	-6.0
10	MAY	1982	45	130.031250	82.580688	6.915342	8.2	-5.8
10	MAY	1982	100	130.041672	82.581390	6.911791	9.1	-5.6
10	MAY	1982	145	130.072922	82.583832	6.902161	10.8	-4.6
10	MAY	1982	200	130.083328	82.584724	6.899420	11.2	-4.1
10	MAY	1982	233	130.106247	82.586792	6.894481	11.9	-3.0
10	MAY	1982	300	130.125000	82.588562	6.891779	12.3	-1.8
10	MAY	1982	333	130.147919	82.590752	6.890135	12.2	-0.6
10	MAY	1982	400	130.166672	82.592506	6.890134	11.8	0.6
10	MAY	1982	421	130.181259	82.593826	6.891082	11.4	1.6
10	MAY	1982	500	130.208328	82.596115	6.894894	10.3	2.9
10	MAY	1982	550	130.243057	82.598686	6.900899	8.7	2.3
10	MAY	1982	600	130.250000	82.599144	6.901778	8.3	1.9
10	MAY	1982	609	130.256241	82.599541	6.902413	8.0	1.5
10	MAY	1982	700	130.291672	82.601517	6.903510	6.4	-0.3
10	MAY	1982	738	130.318054	82.602745	6.902413	5.6	-0.9
10	MAY	1982	757	130.331253	82.603310	6.901692	5.4	-0.9
10	MAY	1982	800	130.333328	82.603401	6.901580	5.3	-0.9
10	MAY	1982	853	130.370132	82.604858	6.900048	4.9	-0.4
10	MAY	1982	900	130.375000	82.605042	6.899930	4.9	-0.4
10	MAY	1982	926	130.393051	82.605721	6.899694	4.9	-0.1
10	MAY	1982	1000	130.416672	82.606628	6.899856	5.0	0.3
10	MAY	1982	1039	130.443741	82.607704	6.900841	5.3	0.9

FRAM 4 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
10	MAY	1982	1100	130.458328	82.608315	6.901686	5.5	1.0
10	MAY	1982	1135	130.482635	82.609398	6.903218	6.0	1.0
10	MAY	1982	1200	130.500000	82.610237	6.904143	6.4	0.8
10	MAY	1982	1225	130.517365	82.611130	6.905031	6.8	0.9
10	MAY	1982	1300	130.541672	82.612434	6.906613	7.0	1.3
10	MAY	1982	1325	130.559036	82.613396	6.908098	7.2	1.6
10	MAY	1982	1400	130.583328	82.614746	6.910716	7.0	2.0
10	MAY	1982	1410	130.590286	82.615120	6.911602	6.9	2.2
10	MAY	1982	1500	130.625000	82.616928	6.916734	6.4	2.5
10	MAY	1982	1515	130.635422	82.617432	6.918326	6.2	2.5
10	MAY	1982	1556	130.663895	82.618713	6.922566	5.3	2.4
10	MAY	1982	1600	130.666672	82.618828	6.922975	5.1	2.4
10	MAY	1982	1700	130.708328	82.620178	6.928593	3.1	1.9
10	MAY	1982	1705	130.711807	82.620262	6.928972	3.0	1.8
10	MAY	1982	1800	130.750000	82.620857	6.931631	1.1	0.5
10	MAY	1982	1855	130.788193	82.620972	6.930899	-0.2	-1.1
10	MAY	1982	1900	130.791672	82.620964	6.930657	-0.3	-1.2
10	MAY	1982	2000	130.833328	82.620766	6.925819	-0.7	-2.5
10	MAY	1982	2044	130.863892	82.620628	6.920887	-0.5	-2.7
10	MAY	1982	2100	130.875000	82.620590	6.919108	-0.4	-2.6
10	MAY	1982	2117	130.886810	82.620560	6.917328	-0.3	-2.4
10	MAY	1982	2152	130.911118	82.620514	6.914255	-0.2	-1.7
10	MAY	1982	2200	130.916672	82.620506	6.913704	-0.1	-1.5
10	MAY	1982	2300	130.958328	82.620506	6.911054	0.0	-0.8
10	MAY	1982	2304	130.961105	82.620506	6.910923	0.0	-0.8
11	MAY	1982	0	131.000000	82.620514	6.909216	0.1	-0.7
11	MAY	1982	22	131.015274	82.620544	6.908619	0.3	-0.6
11	MAY	1982	52	131.036118	82.620605	6.907974	0.5	-0.4
11	MAY	1982	100	131.041672	82.620628	6.907860	0.6	-0.3
11	MAY	1982	200	131.083328	82.621033	6.909742	2.2	2.5
11	MAY	1982	210	131.090286	82.621162	6.910956	2.7	3.3
11	MAY	1982	240	131.111115	82.621719	6.916724	4.2	5.9

Floe Rotation and Magnetic Declination

Measurements of wind direction are referenced to the ice floe and since it rotates, a record of this rotation is needed. Current directions are referenced to magnetic north and magnetic declination is needed to convert them to true directions. Markers positioned on the ice floe determined an arbitrary reference camp azimuth. Bearings of the camp azimuth relative to True North were determined using sun shots.

Magnetic declinations were obtained using a K & E surveyor's compass placed in line with the markers defining the reference camp azimuth. The difference between the True North bearing of the camp azimuth and magnetic north reading from the sureyor's compass is defined as the magnetic declination. Error estimates for magnetic declination are ±0.5 degrees.

Key to column headings:

True Azimuth	Decimal degrees clockwise from True North
Magnetic Declination	Decimal degrees with negative values indicating west declinations.

TABLE 4

FRAM IV AZIMUTH AND MAGNETIC DECLINATION

DATE MN	DAY	YR	GMT	AZIMUTH °(T)	MAGNETIC DECLINATION
March	31	82	1241	15.7	
April	1		1400	15.8	
	2		1439	15.5	
	3		1722	15.2	
	4		1452	15.1	
	5		1403	15.1	
	6		1216	15.5	
	8		1056	16.1	
	9		1113	16.7	-5.0
	10		1350	16.1	-5.0
	11		1152	15.9	-5.0
	12		1112	16.0	-4.0
	13		1323	17.2	-4.0
	14		1132	16.4	-4.0
	15		1322	16.4	-4.0
	16		1112	17.6	-5.0
	17		1302	17.3	-5.0
	18		1055	17.5	-5.0
	19		0921	16.9	-5.0
	20		1247	17.2	-5.0
	22		1534	17.4	-5.0
	23		1433	17.1	-5.0
	24		1854	16.4	-5.0

DATE MN	DAY	YR	GMT	AZIMUTH °(T)	MAGNETIC DECLINATION
April	25	82	1348	16.8	-5.0
	26		1001	16.6	-5.0
	27		1327	17.1	-5.0
	28		0953	17.6	-5.0
	29		1324	17.3	-5.0
	30		1253	16.3	-5.0
May	1		1139	13.9	-4.0
	2		1335	13.5	-4.0
	3		1226	16.8	-5.0
	4		1144	17.7	-6.0
	5		1225	19.6	-9.0
	7		1603	18.4	
	9		0345	18.5	

Depth Soundings - FRAM IV

Continuous recordings of ocean depths were made at Fram IV using a 3.5 kHz Edo sounder system with the transducer suspended through a hydrographic well at a depth of 3 m below sea level. In data reduction, for areas with slightly to moderately varying topography, depths were calculated at hourly intervals and at 5 minute intervals for more rapidly changing topography.

The actual physical measurement obtained from the chart records is a two-way reflection time measured from the transducer to the bottom and back. The "uncorrected" depth is defined as the two-way reflection time multiplied by one-half the nominal speed of sound in sea water (1500 m/sec). A further refinement of depth determination includes a correction for the sound speed profile in particular geographic areas of the ocean and is listed as Vel (corr). Those used are from Matthews Tables (1939). Lastly, the transducer's depth below sea level is added to the corrected depth, and it is this final corrected depth which is shown in the last column under Meters (corr).

It should be noted here that this last correction for transducer depth was not applied to the depth listings in the previous Fram Technical Reports (Hunkins et al., 1979; B. Allen et al., 1980; Hunkins et al., 1981). However, the transducer depths below sea level are mentioned in the section Depth Soundings of each report and these depths can be added to the Meters (corr) listing to give the absolute depth.

In addition to the sounding data presented in this report, additional depth soundings were acquired at various positions away from the Fram IV drift track by Yngve Kristoffersen of the Norsk Polarinstitutt, Oslo, Norway. While these data are not presented here, Figure 5 shows the location of these positions over the northern flank of the Yermak Plateau and the adjacent abyssal plain.

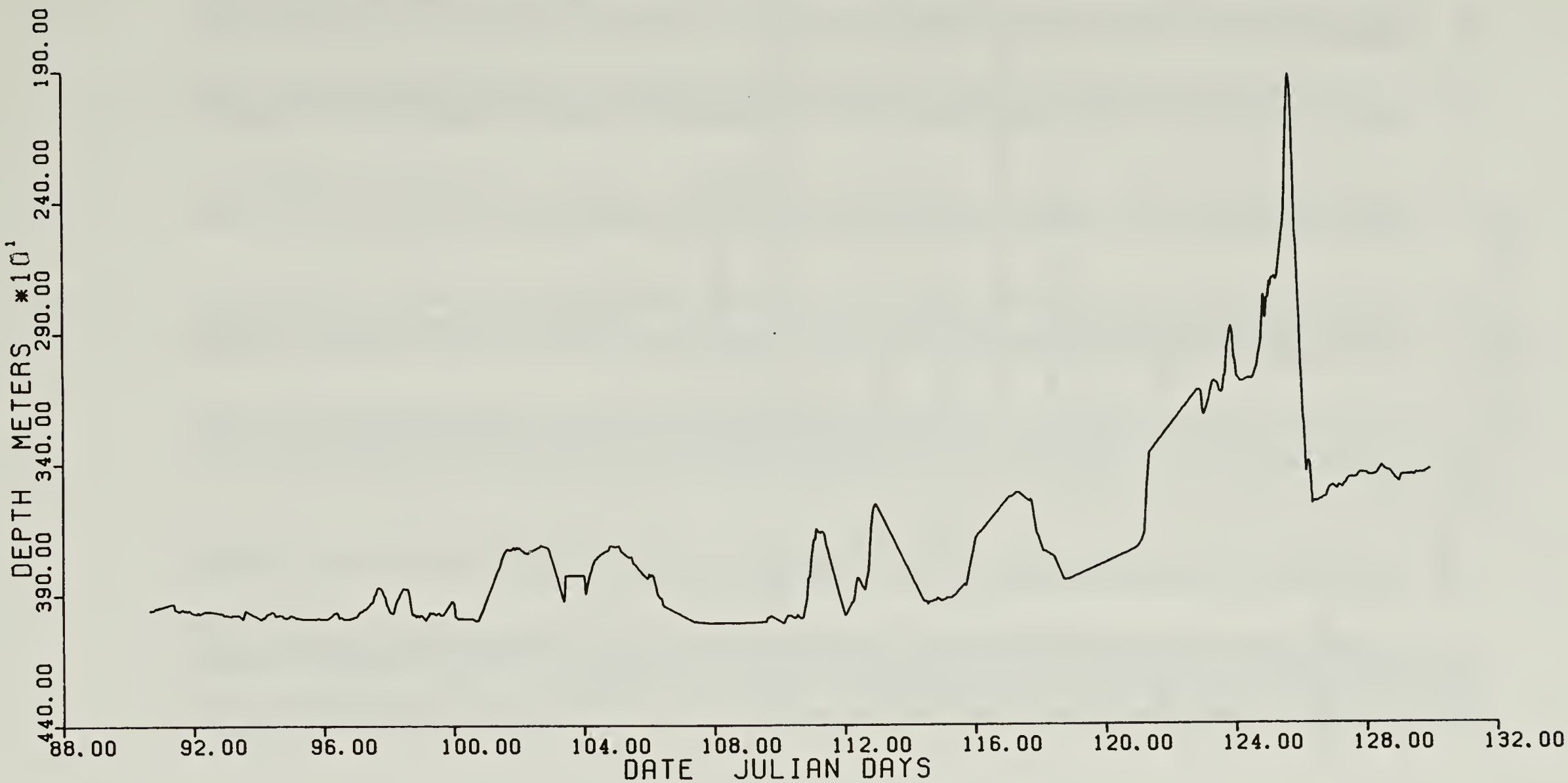

Figure 4 Ocean depth profile along drift track of FRAM IV.

DEPTH DATA FROM FRAM IV

Key to Column Headings

DY	Day
MON	Month
YEAR	Year
GMT	Greenwich Mean Time
Seconds	Two-way travel time from surface to bottom
Meters (Uncorr)	Two-way travel time x 750 m per second
Vel Corr	Matthews correction for velocity of sound in sea water
Meters (Corr)	Absolute depth including Matthews correction and transducer depth

TABLE 5

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
6	APR	1982	800	5.370	4027.5	-58	3972.5
6	APR	1982	900	5.366	4024.5	-58	3969.5
6	APR	1982	1000	5.372	4029.0	-58	3974.0
6	APR	1982	1100	5.389	4041.8	-58	3992.8
6	APR	1982	1200	5.391	4043.3	-58	3988.3
6	APR	1982	1300	5.393	4044.8	-58	3989.8
6	APR	1982	1400	5.398	4048.5	-58	3993.5
6	APR	1982	1500	5.402	4051.5	-58	3996.5
6	APR	1982	1600	5.401	4050.8	-58	3995.8
6	APR	1982	1700	5.400	4050.0	-58	3995.0
6	APR	1982	1800	5.401	4050.8	-58	3995.8
6	APR	1982	1900	5.400	4050.0	-58	3995.0
6	APR	1982	2000	5.396	4047.0	-58	3992.0
6	APR	1982	2100	5.396	4047.0	-58	3992.0
6	APR	1982	2200	5.389	4041.8	-58	3986.8
6	APR	1982	2300	5.390	4042.5	-58	3987.5
7	APR	1982	0	5.388	4041.0	-58	3986.0
7	APR	1982	100	5.376	4032.0	-58	3977.0
7	APR	1982	200	5.368	4026.0	-58	3971.0
7	APR	1982	300	5.360	4020.0	-58	3965.0
7	APR	1982	400	5.360	4020.0	-58	3965.0
7	APR	1982	500	5.350	4012.5	-58	3957.5
7	APR	1982	600	5.350	4012.5	-58	3957.5
7	APR	1982	700	5.348	4011.0	-58	3956.0
7	APR	1982	800	5.338	4003.5	-58	3948.5
7	APR	1982	900	5.330	3997.5	-59	3941.5
7	APR	1982	1000	5.318	3988.5	-59	3932.5
7	APR	1982	1100	5.318	3988.5	-59	3932.5
7	APR	1982	1200	5.309	3981.8	-59	3925.8
7	APR	1982	1300	5.279	3959.3	-59	3903.3
7	APR	1982	1400	5.274	3955.5	-59	3899.5
7	APR	1982	1500	5.244	3933.0	-59	3877.0
7	APR	1982	1600	5.240	3930.0	-59	3874.0
7	APR	1982	1700	5.240	3930.0	-59	3874.0
7	APR	1982	1800	5.247	3935.3	-59	3879.3
7	APR	1982	1900	5.260	3945.0	-59	3889.0
7	APR	1982	2000	5.281	3960.8	-59	3904.8
7	APR	1982	2100	5.292	3969.0	-59	3913.0
7	APR	1982	2200	5.329	3996.8	-59	3940.8
7	APR	1982	2300	5.340	4005.0	-58	3950.0
8	APR	1982	0	5.359	4019.3	-58	3964.3
8	APR	1982	100	5.367	4025.3	-58	3970.3
8	APR	1982	200	5.370	4027.5	-58	3972.5
8	APR	1982	300	5.360	4020.0	-58	3975.0
8	APR	1982	400	5.341	4005.8	-58	3950.8
8	APR	1982	500	5.320	3990.0	-59	3934.0
8	APR	1982	600	5.300	3975.0	-59	3919.0
8	APR	1982	700	5.294	3970.5	-59	3914.5
8	APR	1982	800	5.273	3954.8	-59	3898.8
8	APR	1982	900	5.260	3945.0	-59	3889.0
8	APR	1982	1000	5.245	3933.8	-59	3877.8
8	APR	1982	1100	5.246	3934.5	-59	3878.5
8	APR	1982	1200	5.248	3936.0	-59	3880.0
8	APR	1982	1300	5.249	3936.8	-59	3880.8
8	APR	1982	1400	5.250	3937.5	-59	3881.5
8	APR	1982	1500	5.290	3967.5	-59	3911.5
8	APR	1982	1600	5.340	4005.0	-58	3950.0
8	APR	1982	1700	5.378	4033.5	-58	3978.5
8	APR	1982	1800	5.380	4035.0	-58	3980.0
8	APR	1982	1900	5.377	4032.8	-58	3977.8
8	APR	1982	2000	5.390	4042.5	-58	3987.5
8	APR	1982	2100	5.379	4034.3	-58	3979.3
8	APR	1982	2200	5.390	4042.5	-58	3987.5
8	APR	1982	2300	5.380	4035.0	-58	3980.0
9	APR	1982	0	5.383	4037.3	-58	3982.3
9	APR	1982	100	5.390	4042.5	-58	3987.5
9	APR	1982	200	5.400	4050.0	-58	3995.0
9	APR	1982	300	5.394	4045.5	-58	4000.5

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
9	APR	1982	400	5.390	4042.5	-58	3987.5
9	APR	1982	500	5.385	4038.8	-58	3983.8
9	APR	1982	600	5.368	4026.0	-58	3971.0
9	APR	1982	700	5.371	4028.3	-58	3973.3
9	APR	1982	800	5.371	4028.3	-58	3973.3
9	APR	1982	900	5.370	4027.5	-58	3972.5
9	APR	1982	1000	5.378	4033.5	-58	3978.5
9	APR	1982	1100	5.382	4036.5	-58	3978.8
9	APR	1982	1200	5.370	4027.5	-58	3972.5
9	APR	1982	1300	5.371	4028.3	-58	3973.3
9	APR	1982	1400	5.380	4035.0	-58	3980.0
9	APR	1982	1500	5.380	4035.0	-58	3980.0
9	APR	1982	1600	5.380	4035.0	-58	3980.0
9	APR	1982	1700	5.366	4024.5	-58	3969.5
9	APR	1982	1800	5.358	4018.5	-58	3963.5
9	APR	1982	1900	5.346	4009.5	-58	3954.5
9	APR	1982	2000	5.335	4001.3	-58	3946.3
9	APR	1982	2100	5.324	3993.0	-59	3937.0
9	APR	1982	2200	5.311	3983.3	-59	3927.3
9	APR	1982	2300	5.312	3984.0	-59	3928.0
10	APR	1982	0	5.324	3993.0	-59	3937.0
10	APR	1982	100	5.392	4044.0	-58	3989.0
10	APR	1982	200	5.392	4044.0	-58	3989.0
10	APR	1982	300	5.400	4050.0	-58	3995.0
10	APR	1982	400	5.398	4048.5	-58	3993.5
10	APR	1982	500	5.400	4050.0	-58	3995.0
10	APR	1982	600	5.400	4050.0	-58	3995.0
10	APR	1982	700	5.400	4050.0	-58	3995.0
10	APR	1982	800	5.400	4050.0	-58	3995.0
10	APR	1982	900	5.400	4050.0	-58	3995.0
10	APR	1982	1000	5.400	4050.0	-59	3995.0
10	APR	1982	1100	5.400	4050.0	-58	3995.0
10	APR	1982	1200	5.400	4050.0	-58	3995.0
10	APR	1982	1300	5.400	4050.0	-58	3995.0
10	APR	1982	1400	5.400	4050.0	-58	3995.0
10	APR	1982	1500	5.406	4054.5	-58	3999.5
10	APR	1982	1600	5.410	4057.5	-58	4002.5
10	APR	1982	1700	5.410	4057.5	-58	4002.5
10	APR	1982	1800	5.408	4056.0	-58	4001.0
10	APR	1982	1900	5.391	4043.3	-58	3988.3
10	APR	1982	2000	5.373	4029.8	-58	3974.8
10	APR	1982	2100	5.356	4017.0	-58	3962.0
10	APR	1982	2200	5.338	4003.5	-58	3948.5
10	APR	1982	2300	5.321	3990.8	-59	3934.8
11	APR	1982	0	5.303	3977.3	-59	3921.3
11	APR	1982	100	5.286	3964.5	-59	3908.5
11	APR	1982	200	5.268	3951.0	-59	3895.0
11	APR	1982	300	5.251	3938.3	-59	3882.3
11	APR	1982	400	5.233	3924.8	-59	3868.8
11	APR	1982	500	5.216	3912.0	-59	3856.0
11	APR	1982	600	5.198	3898.5	-60	3841.5
11	APR	1982	700	5.181	3885.8	-60	3828.8
11	APR	1982	800	5.163	3872.3	-60	3815.3
11	APR	1982	900	5.146	3859.5	-60	3802.5
11	APR	1982	1000	5.128	3846.0	-60	3789.0
11	APR	1982	1100	5.100	3825.0	-60	3768.0
11	APR	1982	1200	5.086	3814.5	-60	3757.5
11	APR	1982	1300	5.070	3802.5	-60	3745.5
11	APR	1982	1400	5.059	3794.3	-61	3736.3
11	APR	1982	1500	5.050	3787.5	-61	3729.5
11	APR	1982	1600	5.052	3789.0	-61	3731.0
11	APR	1982	1700	5.057	3792.8	-61	3734.8
11	APR	1982	1800	5.054	3790.5	-61	3732.5
11	APR	1982	1900	5.049	3786.8	-61	3728.8
11	APR	1982	2000	5.040	3780.0	-61	3722.0
11	APR	1982	2100	5.051	3788.3	-61	3730.3
11	APR	1982	2200	5.040	3780.0	-61	3722.0
11	APR	1982	2300	5.046	3784.5	-61	3726.5

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
12	APR	1982	0	5.041	3780.8	-61	3722.8
12	APR	1982	100	5.050	3787.5	-61	3729.5
12	APR	1982	200	5.058	3793.5	-61	3735.5
12	APR	1982	300	5.060	3795.0	-61	3737.0
12	APR	1982	400	5.070	3802.5	-60	3745.5
12	APR	1982	500	5.068	3801.0	-60	3744.0
12	APR	1982	600	5.072	3804.0	-60	3747.0
12	APR	1982	700	5.072	3804.0	-60	3747.0
12	APR	1982	800	5.060	3795.0	-61	3737.0
12	APR	1982	900	5.060	3795.0	-61	3737.0
12	APR	1982	1000	5.057	3792.8	-61	3734.8
12	APR	1982	1100	5.053	3789.8	-61	3731.8
12	APR	1982	1200	5.050	3787.5	-61	3729.5
12	APR	1982	1300	5.047	3785.3	-61	3727.3
12	APR	1982	1400	5.043	3782.3	-61	3724.3
12	APR	1982	1500	5.040	3780.0	-61	3722.0
12	APR	1982	1600	5.029	3771.8	-61	3713.8
12	APR	1982	1700	5.034	3775.8	-61	3717.8
12	APR	1982	1800	5.037	3777.8	-61	3719.8
12	APR	1982	1900	5.039	3779.3	-61	3721.3
12	APR	1982	2000	5.041	3781.5	-61	3723.5
12	APR	1982	2100	5.045	3783.8	-61	3725.8
12	APR	1982	2200	5.057	3792.8	-61	3734.8
12	APR	1982	2300	5.080	3810.0	-60	3753.0
13	APR	1982	0	5.100	3825.0	-60	3768.0
13	APR	1982	100	5.121	3840.8	-60	3783.8
13	APR	1982	200	5.145	3858.8	-60	3801.8
13	APR	1982	300	5.170	3877.5	-60	3820.5
13	APR	1982	400	5.194	3895.5	-60	3838.5
13	APR	1982	500	5.218	3913.5	-59	3857.5
13	APR	1982	600	5.243	3932.3	-59	3876.3
13	APR	1982	700	5.267	3950.3	-59	3894.3
13	APR	1982	800	5.292	3969.0	-59	3913.0
13	APR	1982	900	5.316	3987.0	-59	3931.0
13	APR	1982	1000	5.316	3987.0	-59	3831.0
13	APR	1982	1100	5.316	3987.0	-59	3831.0
13	APR	1982	1200	5.316	3987.0	-59	3831.0
13	APR	1982	1300	5.316	3987.0	-59	3831.0
13	APR	1982	1400	5.316	3987.0	-59	3831.0
13	APR	1982	1500	5.316	3987.0	-59	3831.0
13	APR	1982	1600	5.316	3987.0	-59	3831.0
13	APR	1982	1700	5.316	3987.0	-59	3831.0
13	APR	1982	1800	5.316	3987.0	-59	3831.0
13	APR	1982	1900	5.316	3987.0	-59	3831.0
13	APR	1982	2000	5.316	3987.0	-59	3831.0
13	APR	1982	2100	5.316	3987.0	-59	3831.0
13	APR	1982	2200	5.316	3987.0	-59	3831.0
13	APR	1982	2300	5.316	3987.0	-59	3831.0
14	APR	1982	0	5.316	3987.0	-59	3831.0
14	APR	1982	100	5.278	3958.5	-59	3902.5
14	APR	1982	200	5.241	3930.8	-59	3874.8
14	APR	1982	300	5.203	3902.3	-59	3846.3
14	APR	1982	400	5.179	3884.3	-60	3827.3
14	APR	1982	500	5.160	3870.0	-60	3813.0
14	APR	1982	600	5.134	3850.5	-60	3793.5
14	APR	1982	700	5.120	3840.0	-60	3783.5
14	APR	1982	800	5.102	3826.5	-60	3769.5
14	APR	1982	900	5.098	3823.5	-60	3766.5
14	APR	1982	1000	5.087	3815.3	-60	3758.3
14	APR	1982	1100	5.086	3814.5	-60	3757.5
14	APR	1982	1200	5.075	3806.3	-60	3749.3
14	APR	1982	1300	5.072	3804.0	-60	3747.0
14	APR	1982	1400	5.069	3801.8	-60	3744.8
14	APR	1982	1500	5.065	3798.8	-61	3740.8
14	APR	1982	1600	5.062	3796.5	-61	3738.5
14	APR	1982	1700	5.059	3794.3	-61	3736.3
14	APR	1982	1800	5.056	3792.0	-61	3734.0
14	APR	1982	1900	5.034	3775.5	-61	3717.5

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
14	APR	1982	2000	5.033	3774.8	-61	3716.8
14	APR	1982	2100	5.038	3778.5	-61	3720.5
14	APR	1982	2200	5.040	3780.0	-61	3722.0
14	APR	1982	2300	5.040	3780.0	-61	3722.0
15	APR	1982	0	5.039	3779.3	-61	3721.3
15	APR	1982	100	5.050	3787.5	-61	3719.5
15	APR	1982	200	5.050	3787.5	-61	3719.5
15	APR	1982	300	5.061	3795.8	-61	3737.8
15	APR	1982	400	5.067	3800.3	-60	3743.3
15	APR	1982	500	5.072	3804.0	-60	3747.0
15	APR	1982	600	5.078	3808.5	-60	3751.5
15	APR	1982	700	5.083	3812.3	-60	3755.3
15	APR	1982	800	5.089	3816.8	-60	3759.8
15	APR	1982	900	5.094	3820.5	-60	3763.5
15	APR	1982	1000	5.100	3825.0	-60	3763.5
15	APR	1982	1100	5.090	3817.5	-60	3760.5
15	APR	1982	1200	5.121	3840.8	-60	3783.8
15	APR	1982	1300	5.129	3846.8	-60	3789.8
15	APR	1982	1400	5.134	3850.5	-60	3793.5
15	APR	1982	1500	5.145	3858.8	-60	3801.8
15	APR	1982	1600	5.153	3864.8	-60	3807.8
15	APR	1982	1700	5.160	3870.0	-60	3813.0
15	APR	1982	1800	5.168	3876.0	-60	3819.0
15	APR	1982	1900	5.176	3882.0	-60	3825.0
15	APR	1982	2000	5.184	3888.0	-60	3831.0
15	APR	1982	2100	5.192	3894.0	-60	3837.0
15	APR	1982	2200	5.200	3900.0	-59	3844.0
15	APR	1982	2300	5.198	3898.5	-60	3841.5
16	APR	1982	0	5.177	3882.8	-60	3825.8
16	APR	1982	100	5.190	3892.5	-60	3835.5
16	APR	1982	200	5.180	3885.0	-60	3828.0
16	APR	1982	300	5.192	3894.0	-60	3837.0
16	APR	1982	400	5.220	3915.0	-59	3859.0
16	APR	1982	500	5.246	3934.5	-59	3878.5
16	APR	1982	600	5.279	3959.3	-59	3903.3
16	APR	1982	700	5.291	3968.3	-59	3912.3
16	APR	1982	800	5.300	3975.0	-59	3919.0
16	APR	1982	900	5.300	3975.0	-59	3919.0
16	APR	1982	1000	5.336	4002.0	-58	3947.0
16	APR	1982	1100	5.340	4005.0	-58	3950.0
16	APR	1982	1200	5.343	4007.3	-58	3952.3
16	APR	1982	1300	5.347	4010.3	-58	3955.3
16	APR	1982	1400	5.351	4013.3	-58	3958.3
16	APR	1982	1500	5.354	4015.5	-58	3960.5
16	APR	1982	1600	5.358	4018.5	-58	3963.5
16	APR	1982	1700	5.362	4021.5	-58	3966.5
16	APR	1982	1800	5.365	4023.8	-58	3968.8
16	APR	1982	1900	5.369	4026.8	-58	3971.8
16	APR	1982	2000	5.372	4029.0	-58	3974.0
16	APR	1982	2100	5.376	4032.0	-58	3977.0
16	APR	1982	2200	5.380	4035.0	-58	3980.0
16	APR	1982	2300	5.383	4037.3	-58	3982.3
17	APR	1982	0	5.387	4040.3	-58	3985.3
17	APR	1982	100	5.391	4040.3	-58	3988.3
17	APR	1982	200	5.394	4045.5	-58	3990.5
17	APR	1982	300	5.398	4048.5	-58	3993.5
17	APR	1982	400	5.402	4051.5	-58	3996.5
17	APR	1982	500	5.405	4053.8	-58	3998.8
17	APR	1982	600	5.409	4056.8	-58	4001.8
17	APR	1982	700	5.413	4059.8	-58	4004.8
17	APR	1982	800	5.416	4062.0	-58	4007.0
17	APR	1982	920	5.420	4065.0	-58	4010.0
17	APR	1982	1000	5.421	4065.8	-58	4010.8
17	APR	1982	1100	5.421	4065.8	-58	4010.8
17	APR	1982	1200	5.422	4066.5	-58	4011.5
17	APR	1982	1300	5.422	4066.5	-58	4011.5
17	APR	1982	1430	5.423	4067.3	-58	4012.3
17	APR	1982	1500	5.424	4068.0	-58	4013.0

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
17	APR	1982	1600	5.424	4068.0	-58	4013.0
17	APR	1982	1700	5.425	4068.8	-58	4013.8
17	APR	1982	1800	5.426	4069.5	-58	4014.5
17	APR	1982	1900	5.426	4069.5	-58	4014.5
17	APR	1982	2030	5.427	4070.3	-58	4015.3
17	APR	1982	2100	5.427	4070.3	-58	4015.3
17	APR	1982	2200	5.427	4070.3	-58	4015.3
17	APR	1982	2300	5.427	4070.3	-58	4015.3
18	APR	1982	0	5.426	4069.5	-58	4014.5
18	APR	1982	100	5.426	4069.5	-58	4014.5
18	APR	1982	200	5.426	4069.5	-58	4014.5
18	APR	1982	300	5.426	4069.5	-58	4014.5
18	APR	1982	400	5.426	4069.5	-58	4014.5
18	APR	1982	500	5.426	4069.5	-58	4014.5
18	APR	1982	600	5.426	4069.5	-58	4014.5
18	APR	1982	700	5.426	4069.5	-58	4014.5
18	APR	1982	800	5.426	4069.5	-58	4014.5
18	APR	1982	900	5.425	4068.8	-58	4013.8
18	APR	1982	1000	5.425	4068.8	-58	4013.8
18	APR	1982	1100	5.425	4068.8	-58	4013.8
18	APR	1982	1200	5.425	4068.8	-58	4013.8
18	APR	1982	1310	5.425	4068.8	-58	4013.8
18	APR	1982	1400	5.425	4068.8	-58	4013.8
18	APR	1982	1500	5.425	4068.8	-58	4013.8
18	APR	1982	1600	5.425	4068.8	-58	4013.8
18	APR	1982	1700	5.425	4068.8	-58	4013.8
18	APR	1982	1800	5.425	4068.8	-58	4013.8
18	APR	1982	1900	5.425	4068.8	-58	4013.8
18	APR	1982	2000	5.425	4068.8	-58	4013.8
18	APR	1982	2100	5.425	4068.8	-58	4013.8
18	APR	1982	2200	5.425	4068.8	-58	4013.8
18	APR	1982	2300	5.424	4068.0	-58	4013.0
19	APR	1982	0	5.424	4068.0	-58	4013.0
19	APR	1982	100	5.424	4068.0	-58	4013.0
19	APR	1982	200	5.424	4068.0	-58	4013.0
19	APR	1982	300	5.424	4068.0	-58	4013.0
19	APR	1982	400	5.423	4067.3	-58	4012.3
19	APR	1982	500	5.423	4067.3	-58	4012.3
19	APR	1982	600	5.423	4067.3	-58	4012.3
19	APR	1982	700	5.423	4067.3	-58	4012.3
19	APR	1982	800	5.422	4066.5	-58	4011.5
19	APR	1982	900	5.422	4066.5	-58	4011.5
19	APR	1982	1000	5.421	4065.8	-58	4010.8
19	APR	1982	1100	5.421	4065.8	-58	4010.8
19	APR	1982	1200	5.421	4065.8	-58	4010.8
19	APR	1982	1300	5.420	4065.0	-58	4010.0
19	APR	1982	1400	5.420	4065.0	-58	4010.0
19	APR	1982	1500	5.398	4048.5	-58	3993.5
19	APR	1982	1600	5.399	4049.3	-58	3994.3
19	APR	1982	1700	5.391	4043.3	-58	3988.3
19	APR	1982	1800	5.391	4043.3	-58	3988.3
19	APR	1982	1900	5.395	4046.3	-58	3991.3
19	APR	1982	2000	5.399	4049.3	-58	3994.3
19	APR	1982	2100	5.404	4053.0	-58	3998.0
19	APR	1982	2200	5.408	4056.0	-58	4001.0
19	APR	1982	2300	5.412	4059.0	-58	4004.0
20	APR	1982	0	5.416	4062.0	-58	4007.0
20	APR	1982	100	5.421	4065.8	-58	4010.8
20	APR	1982	200	5.425	4068.8	-58	4013.8
20	APR	1982	320	5.425	4068.8	-58	4013.8
20	APR	1982	400	5.408	4056.0	-58	4001.0
20	APR	1982	500	5.395	4046.3	-58	3991.3
20	APR	1982	600	5.386	4039.5	-58	3984.5
20	APR	1982	700	5.389	4041.8	-58	3986.8
20	APR	1982	800	5.388	4041.0	-58	3986.0
20	APR	1982	900	5.391	4043.3	-58	3988.3
20	APR	1982	1000	5.410	4057.5	-58	3992.5
20	APR	1982	1100	5.400	4050.0	-58	3995.0

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
20	APR	1982	1200	5.398	4048.5	-58	3993.5
20	APR	1982	1300	5.382	4036.5	-58	3981.5
20	APR	1982	1400	5.390	4042.5	-58	3987.5
20	APR	1982	1500	5.403	4052.3	-58	3997.3
20	APR	1982	1600	5.400	4050.0	-58	3995.0
20	APR	1982	1700	5.400	4050.0	-58	3995.0
20	APR	1982	1800	5.367	4025.3	-58	3970.3
20	APR	1982	1900	5.333	3999.8	-59	3943.8
20	APR	1982	2000	5.300	3975.0	-59	3919.0
20	APR	1982	2100	5.200	3900.0	-59	3844.0
20	APR	1982	2200	5.152	3864.0	-60	3837.0
20	APR	1982	2300	5.104	3828.0	-60	3771.0
21	APR	1982	0	5.056	3792.0	-61	3734.0
21	APR	1982	100	5.008	3756.0	-61	3698.0
21	APR	1982	200	4.960	3720.0	-61	3698.0
21	APR	1982	300	4.949	3711.8	-61	3653.8
21	APR	1982	400	4.964	3723.0	-61	3665.0
21	APR	1982	500	4.971	3728.3	-61	3670.3
21	APR	1982	600	4.974	3730.5	-61	3672.5
21	APR	1982	700	4.965	3723.8	-61	3665.8
21	APR	1982	800	4.969	3726.8	-61	3668.8
21	APR	1982	900	4.982	3736.5	-61	3678.5
21	APR	1982	1000	5.033	3774.8	-61	3716.8
21	APR	1982	1100	5.056	3792.0	-61	3734.0
21	APR	1982	1200	5.084	3813.0	-60	3756.0
21	APR	1982	1300	5.110	3832.5	-60	3775.5
21	APR	1982	1400	5.135	3851.3	-60	3794.3
21	APR	1982	1500	5.161	3870.8	-60	3813.8
21	APR	1982	1600	5.186	3889.5	-60	3832.5
21	APR	1982	1700	5.212	3909.0	-59	3853.0
21	APR	1982	1800	5.238	3928.5	-59	3872.5
21	APR	1982	1900	5.263	3947.3	-59	3891.3
21	APR	1982	2000	5.289	3966.8	-59	3910.8
21	APR	1982	2100	5.314	3985.5	-59	3929.5
21	APR	1982	2200	5.340	4005.0	-58	3950.0
21	APR	1982	2300	5.365	4023.8	-58	3968.8
22	APR	1982	0	5.391	4043.3	-58	3988.3
22	APR	1982	100	5.379	4034.3	-58	3979.3
22	APR	1982	200	5.365	4023.8	-58	3968.8
22	APR	1982	300	5.349	4011.8	-58	3956.8
22	APR	1982	400	5.335	4001.3	-58	3946.3
22	APR	1982	500	5.322	3991.5	-59	3935.5
22	APR	1982	600	5.318	3988.5	-59	3932.5
22	APR	1982	700	5.284	3963.5	-59	3907.5
22	APR	1982	800	5.236	3927.0	-59	3871.0
22	APR	1982	900	5.198	3898.5	-60	3842.5
22	APR	1982	1000	5.200	3900.0	-59	3844.0
22	APR	1982	1100	5.215	3911.3	-59	3855.3
22	APR	1982	1200	5.231	3923.3	-59	3867.3
22	APR	1982	1300	5.246	3934.5	-59	3878.5
22	APR	1982	1457	5.261	3945.8	-59	3889.8
22	APR	1982	1500	5.245	3933.8	-59	3877.8
22	APR	1982	1600	5.201	3900.8	-59	3844.8
22	APR	1982	1720	5.158	3868.5	-60	3811.5
22	APR	1982	1800	5.082	3811.5	-60	3754.5
22	APR	1982	1900	4.970	3727.5	-61	3669.5
22	APR	1982	2000	4.900	3675.0	-61	3617.0
22	APR	1982	2100	4.853	3639.8	-61	3581.8
22	APR	1982	2200	4.830	3622.5	-61	3564.5
22	APR	1982	2300	4.830	3622.5	-61	3564.5
23	APR	1982	0	4.844	3633.0	-61	3575.0
23	APR	1982	100	4.858	3643.5	-61	3585.5
23	APR	1982	200	4.872	3654.0	-61	3596.0
23	APR	1982	300	4.886	3664.5	-61	3606.5
23	APR	1982	400	4.900	3675.0	-61	3617.0
23	APR	1982	500	4.914	3685.5	-61	3627.5
23	APR	1982	600	4.928	3696.0	-61	3638.0
23	APR	1982	700	4.942	3706.5	-61	3648.5

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
23	APR	1982	800	4.956	3717.0	-61	3659.0
23	APR	1982	900	4.970	3727.5	-61	3669.5
23	APR	1982	1000	4.984	3738.0	-61	3680.0
23	APR	1982	1100	4.998	3748.5	-61	3690.5
23	APR	1982	1200	5.012	3759.0	-61	3701.0
23	APR	1982	1300	5.026	3769.5	-61	3711.5
23	APR	1982	1400	5.040	3780.0	-61	3722.0
23	APR	1982	1500	5.054	3790.5	-61	3732.5
23	APR	1982	1600	5.068	3801.0	-60	3744.0
23	APR	1982	1700	5.082	3811.5	-60	3754.5
23	APR	1982	1800	5.096	3822.0	-60	3765.0
23	APR	1982	1900	5.110	3832.5	-60	3775.5
23	APR	1982	2000	5.124	3843.0	-60	3786.0
23	APR	1982	2100	5.138	3853.5	-60	3796.5
23	APR	1982	2200	5.152	3864.0	-60	3807.0
23	APR	1982	2300	5.166	3874.5	-60	3817.5
24	APR	1982	0	5.180	3885.0	-60	3828.0
24	APR	1982	100	5.194	3895.5	-60	3838.5
24	APR	1982	200	5.208	3906.0	-59	3850.0
24	APR	1982	300	5.222	3916.5	-59	3860.5
24	APR	1982	400	5.236	3927.0	-59	3871.0
24	APR	1982	500	5.250	3937.5	-59	3881.5
24	APR	1982	600	5.264	3948.0	-59	3892.0
24	APR	1982	700	5.278	3958.5	-59	3902.5
24	APR	1982	800	5.292	3969.0	-59	3913.0
24	APR	1982	900	5.306	3979.5	-59	3923.5
24	APR	1982	1000	5.320	3990.0	-59	3934.0
24	APR	1982	1100	5.320	3990.0	-59	3934.0
24	APR	1982	1200	5.320	3990.0	-59	3934.0
24	APR	1982	1300	5.334	4000.5	-58	3945.5
24	APR	1982	1400	5.320	3990.0	-59	3934.0
24	APR	1982	1500	5.320	3990.0	-59	3934.0
24	APR	1982	1600	5.320	3990.0	-59	3934.0
24	APR	1982	1700	5.314	3985.5	-59	3929.5
24	APR	1982	1800	5.315	3986.3	-59	3930.3
24	APR	1982	1900	5.313	3984.8	-59	3928.8
24	APR	1982	2000	5.300	3975.0	-59	3919.0
24	APR	1982	2100	5.305	3978.8	-59	3922.8
24	APR	1982	2200	5.312	3984.0	-59	3928.0
24	APR	1982	2300	5.318	3988.5	-59	3932.5
25	APR	1982	0	5.313	3984.8	-59	3928.8
25	APR	1982	100	5.310	3982.5	-59	3926.5
25	APR	1982	200	5.310	3982.5	-59	3926.5
25	APR	1982	300	5.302	3976.5	-59	3920.5
25	APR	1982	400	5.301	3975.8	-59	3919.8
25	APR	1982	500	5.300	3975.0	-59	3919.0
25	APR	1982	600	5.302	3976.5	-59	3920.5
25	APR	1982	700	5.300	3975.8	-59	3919.8
25	APR	1982	800	5.290	3967.5	-59	3911.5
25	APR	1982	900	5.289	3966.8	-59	3910.8
25	APR	1982	1000	5.278	3958.5	-59	3902.5
25	APR	1982	1100	5.269	3951.8	-59	3895.8
25	APR	1982	1200	5.261	3945.8	-59	3889.8
25	APR	1982	1300	5.254	3940.5	-59	3884.5
25	APR	1982	1400	5.246	3934.5	-59	3878.5
25	APR	1982	1500	5.239	3929.3	-59	3873.3
25	APR	1982	1600	5.231	3923.3	-59	3867.3
25	APR	1982	1700	5.241	3930.8	-59	3874.8
25	APR	1982	1800	5.206	3904.5	-59	3848.5
25	APR	1982	1900	5.171	3878.3	-60	3819.3
25	APR	1982	2000	5.136	3852.0	-60	3795.0
25	APR	1982	2100	5.102	3826.5	-60	3769.5
25	APR	1982	2200	5.067	3800.3	-60	3743.3
25	APR	1982	2300	5.032	3774.0	-61	3716.0
26	APR	1982	0	5.000	3750.0	-61	3692.0
26	APR	1982	100	4.990	3742.5	-61	3684.5
26	APR	1982	200	4.980	3735.0	-61	3677.0
26	APR	1982	300	4.974	3730.5	-61	3672.5

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
26	APR	1982	400	4.967	3725.3	-61	3667.3
26	APR	1982	500	4.961	3720.8	-61	3662.8
26	APR	1982	600	4.952	3714.0	-61	3656.0
26	APR	1982	700	4.944	3708.0	-61	3650.0
26	APR	1982	800	4.935	3701.3	-61	3643.3
26	APR	1982	900	4.927	3695.3	-61	3637.3
26	APR	1982	1000	4.918	3688.5	-61	3630.5
26	APR	1982	1100	4.910	3682.5	-61	3624.5
26	APR	1982	1200	4.901	3675.8	-61	3617.8
26	APR	1982	1300	4.893	3669.8	-61	3611.8
26	APR	1982	1400	4.884	3663.0	-61	3605.0
26	APR	1982	1500	4.876	3657.0	-61	3599.0
26	APR	1982	1600	4.870	3652.5	-61	3594.5
26	APR	1982	1700	4.858	3643.5	-61	3585.5
26	APR	1982	1800	4.850	3637.5	-61	3579.5
26	APR	1982	1900	4.841	3630.8	-61	3572.8
26	APR	1982	2000	4.833	3624.8	-61	3566.8
26	APR	1982	2100	4.824	3618.0	-61	3560.0
26	APR	1982	2200	4.816	3612.0	-61	3554.0
26	APR	1982	2300	4.807	3605.3	-61	3547.3
27	APR	1982	0	4.799	3599.3	-61	3541.3
27	APR	1982	100	4.790	3592.5	-61	3534.5
27	APR	1982	140	4.794	3595.5	-61	3537.5
27	APR	1982	200	4.794	3595.5	-61	3537.5
27	APR	1982	300	4.790	3592.5	-61	3534.5
27	APR	1982	400	4.785	3588.8	-61	3530.8
27	APR	1982	500	4.780	3585.0	-61	3527.0
27	APR	1982	600	4.771	3578.3	-61	3520.3
27	APR	1982	700	4.771	3578.3	-61	3520.3
27	APR	1982	800	4.773	3579.8	-61	3521.8
27	APR	1982	900	4.775	3581.3	-61	3523.3
27	APR	1982	1000	4.784	3588.0	-61	3530.0
27	APR	1982	1100	4.790	3592.5	-61	3534.5
27	APR	1982	1200	4.796	3597.0	-61	3539.0
27	APR	1982	1300	4.801	3600.8	-61	3542.8
27	APR	1982	1400	4.807	3605.3	-61	3547.3
27	APR	1982	1500	4.813	3609.8	-61	3551.8
27	APR	1982	1600	4.816	3612.0	-61	3554.0
27	APR	1982	1700	4.806	3604.5	-61	3546.5
27	APR	1982	1800	4.840	3630.0	-61	3572.0
27	APR	1982	1900	4.890	3667.5	-61	3609.5
27	APR	1982	2000	4.932	3699.0	-61	3641.0
27	APR	1982	2100	4.974	3730.5	-61	3672.5
27	APR	1982	2200	4.993	3744.8	-61	3686.8
27	APR	1982	2300	5.012	3759.0	-61	3701.0
28	APR	1982	0	5.032	3774.0	-61	3716.0
28	APR	1982	100	5.051	3788.3	-61	3730.3
28	APR	1982	200	5.070	3802.5	-60	3745.5
28	APR	1982	300	5.070	3802.5	-60	3745.5
28	APR	1982	400	5.070	3802.5	-60	3745.5
28	APR	1982	500	5.078	3808.5	-60	3751.5
28	APR	1982	600	5.080	3810.0	-60	3753.0
28	APR	1982	700	5.085	3813.8	-60	3756.8
28	APR	1982	800	5.090	3817.5	-60	3760.5
28	APR	1982	900	5.091	3818.3	-60	3761.3
28	APR	1982	1000	5.100	3825.0	-60	3768.0
28	APR	1982	1100	5.116	3837.0	-60	3780.0
28	APR	1982	1200	5.132	3849.0	-60	3792.0
28	APR	1982	1300	5.148	3861.0	-60	3804.0
28	APR	1982	1400	5.164	3873.0	-60	3816.0
28	APR	1982	1500	5.180	3885.0	-60	3828.0
28	APR	1982	1600	5.196	3897.0	-60	3840.0
28	APR	1982	1700	5.212	3909.0	-59	3853.0
28	APR	1982	1800	5.213	3909.8	-59	3853.8
28	APR	1982	1900	5.210	3907.5	-59	3851.5
28	APR	1982	2000	5.210	3907.5	-59	3851.5
28	APR	1982	2100	5.210	3907.5	-59	3851.5
28	APR	1982	2200	5.207	3905.3	-59	3849.3

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
28	APR	1982	2300	5.204	3903.0	-59	3847.0
29	APR	1982	0	5.201	3900.8	-59	3844.8
29	APR	1982	100	5.197	3897.8	-60	3840.8
29	APR	1982	200	5.194	3895.5	-60	3838.5
29	APR	1982	300	5.191	3893.3	-60	3836.3
29	APR	1982	400	5.188	3891.0	-60	3834.0
29	APR	1982	500	5.185	3888.8	-60	3831.8
29	APR	1982	600	5.182	3886.5	-60	3829.5
29	APR	1982	700	5.178	3883.5	-60	3826.5
29	APR	1982	800	5.175	3881.3	-60	3824.3
29	APR	1982	900	5.182	3879.0	-60	3822.0
29	APR	1982	1000	5.169	3876.8	-60	3819.8
29	APR	1982	1100	5.166	3847.5	-60	3817.5
29	APR	1982	1200	5.163	3872.3	-60	3815.3
29	APR	1982	1300	5.160	3870.0	-60	3813.0
29	APR	1982	1400	5.156	3867.0	-60	3810.0
29	APR	1982	1500	5.153	3864.8	-60	3807.8
29	APR	1982	1600	5.150	3862.5	-60	3805.5
29	APR	1982	1700	5.147	3860.3	-60	3803.3
29	APR	1982	1800	5.144	3858.0	-60	3801.0
29	APR	1982	1900	5.141	3855.8	-60	3798.8
29	APR	1982	2000	5.138	3853.5	-60	3796.5
29	APR	1982	2100	5.134	3850.5	-60	3793.5
29	APR	1982	2200	5.131	3848.3	-60	3791.3
29	APR	1982	2300	5.128	3846.0	-60	3789.0
30	APR	1982	0	5.125	3843.8	-60	3786.8
30	APR	1982	100	5.122	3841.5	-60	3784.5
30	APR	1982	200	5.119	3839.3	-60	3782.3
30	APR	1982	300	5.116	3837.0	-60	3780.0
30	APR	1982	400	5.112	3834.0	-60	3777.0
30	APR	1982	500	5.109	3831.8	-60	3774.8
30	APR	1982	600	5.106	3826.5	-60	3772.5
30	APR	1982	700	5.103	3827.3	-60	3770.3
30	APR	1982	800	5.100	3825.0	-60	3768.0
30	APR	1982	900	5.097	3822.8	-60	3765.8
30	APR	1982	1000	5.094	3820.5	-60	3763.5
30	APR	1982	1100	5.090	3817.5	-60	3760.5
30	APR	1982	1200	5.087	3815.3	-60	3758.3
30	APR	1982	1300	5.084	3813.0	-60	3756.0
30	APR	1982	1400	5.081	3810.8	-60	3753.8
30	APR	1982	1500	5.078	3808.5	-60	3751.5
30	APR	1982	1600	5.075	3806.3	-60	3749.3
30	APR	1982	1700	5.072	3804.0	-60	3747.0
30	APR	1982	1800	5.068	3801.0	-60	3744.0
30	APR	1982	1900	5.065	3798.5	-61	3740.5
30	APR	1982	2000	5.062	3796.5	-61	3738.5
30	APR	1982	2100	5.059	3794.3	-61	3736.3
30	APR	1982	2200	5.053	3789.8	-61	3731.8
30	APR	1982	2300	5.049	3786.8	-61	3728.8
1	MAY	1982	0	5.040	3780.0	-61	3722.0
1	MAY	1982	100	5.030	3772.5	-61	3714.5
1	MAY	1982	200	5.019	3764.3	-61	3706.3
1	MAY	1982	300	4.999	3749.3	-61	3691.3
1	MAY	1982	400	4.978	3733.5	-61	3675.5
1	MAY	1982	500	4.870	3652.5	-61	3594.5
1	MAY	1982	600	4.736	3552.0	-61	3494.0
1	MAY	1982	700	4.651	3488.3	-60	3431.3
1	MAY	1982	800	4.570	3427.5	-60	3370.5
1	MAY	1982	900	4.561	3420.8	-60	3363.8
1	MAY	1982	1000	4.552	3414.0	-60	3357.0
1	MAY	1982	1100	4.543	3407.3	-60	3350.3
1	MAY	1982	1200	4.534	3400.5	-60	3343.5
1	MAY	1982	1300	4.525	3393.8	-61	3335.8
1	MAY	1982	1400	4.516	3387.0	-61	3329.0
1	MAY	1982	1500	4.507	3380.3	-61	3322.3
1	MAY	1982	1600	4.498	3373.5	-61	3315.5
1	MAY	1982	1700	4.489	3366.8	-61	3308.8
1	MAY	1982	1800	4.480	3360.0	-61	3302.0

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
1	MAY	1982	1900	4.471	3353.3	-61	3295.3
1	MAY	1982	2000	4.462	3346.5	-61	3288.5
1	MAY	1982	2100	4.453	3339.8	-61	3281.8
1	MAY	1982	2200	4.444	3333.0	-61	3275.0
1	MAY	1982	2300	4.435	3326.3	-61	3268.3
2	MAY	1982	0	4.426	3319.5	-61	3261.5
2	MAY	1982	100	4.417	3312.8	-61	3254.8
2	MAY	1982	200	4.408	3306.0	-61	3248.0
2	MAY	1982	300	4.399	3299.3	-61	3241.3
2	MAY	1982	400	4.390	3292.5	-61	3234.5
2	MAY	1982	500	4.381	3285.8	-61	3227.8
2	MAY	1982	600	4.372	3279.0	-61	3221.0
2	MAY	1982	700	4.363	3272.3	-61	3214.3
2	MAY	1982	800	4.354	3265.5	-61	3207.5
2	MAY	1982	900	4.345	3258.8	-61	3200.8
2	MAY	1982	1000	4.336	3252.0	-61	3194.0
2	MAY	1982	1100	4.327	3245.3	-61	3187.3
2	MAY	1982	1200	4.318	3238.5	-61	3180.5
2	MAY	1982	1300	4.309	3231.8	-61	3173.8
2	MAY	1982	1400	4.300	3225.0	-61	3167.0
2	MAY	1982	1500	4.291	3218.3	-61	3160.3
2	MAY	1982	1600	4.282	3211.5	-61	3153.5
2	MAY	1982	1700	4.273	3204.8	-61	3146.8
2	MAY	1982	1800	4.264	3198.0	-61	3140.0
2	MAY	1982	1900	4.255	3191.3	-61	3133.3
2	MAY	1982	2000	4.255	3191.3	-61	3133.3
2	MAY	1982	2128	4.255	3191.3	-61	3133.3
2	MAY	1982	2200	4.270	3202.5	-61	3144.5
2	MAY	1982	2300	4.358	3268.5	-61	3210.5
3	MAY	1982	0	4.381	3285.8	-61	3227.8
3	MAY	1982	100	4.359	3269.3	-61	3211.3
3	MAY	1982	200	4.339	3254.3	-61	3196.3
3	MAY	1982	300	4.317	3237.8	-61	3179.8
3	MAY	1982	400	4.284	3213.0	-61	3155.0
3	MAY	1982	500	4.250	3187.5	-61	3129.5
3	MAY	1982	600	4.220	3165.0	-61	3107.0
3	MAY	1982	700	4.208	3156.0	-61	3098.0
3	MAY	1982	800	4.208	3156.0	-61	3098.0
3	MAY	1982	900	4.214	3156.5	-61	3102.5
3	MAY	1982	1000	4.221	3165.8	-61	3107.8
3	MAY	1982	1100	4.248	3186.0	-61	3128.0
3	MAY	1982	1117	4.262	3196.5	-61	3138.5
3	MAY	1982	1200	4.260	3195.0	-61	3137.0
3	MAY	1982	1300	4.268	3201.0	-61	3143.0
3	MAY	1982	1346	4.259	3194.3	-61	3136.3
3	MAY	1982	1400	4.240	3180.0	-61	3122.0
3	MAY	1982	1500	4.181	3135.8	-61	3077.8
3	MAY	1982	1531	4.181	3135.8	-61	3077.8
3	MAY	1982	1600	4.138	3103.5	-61	3045.5
3	MAY	1982	1700	4.033	3024.8	-61	2966.8
3	MAY	1982	1800	4.000	3000.0	-61	2942.0
3	MAY	1982	1900	3.948	2961.0	-60	2904.0
3	MAY	1982	2000	3.928	2946.0	-60	2889.0
3	MAY	1982	2100	3.960	2970.0	-60	2913.0
3	MAY	1982	2200	4.090	3067.5	-61	3009.5
3	MAY	1982	2300	4.112	3084.5	-61	3026.5
4	MAY	1982	0	4.184	3138.0	-61	3080.0
4	MAY	1982	100	4.193	3144.8	-61	3086.8
4	MAY	1982	200	4.203	3152.3	-61	3094.3
4	MAY	1982	300	4.212	3159.0	-61	3101.0
4	MAY	1982	400	4.210	3157.5	-61	3099.5
4	MAY	1982	500	4.210	3157.5	-61	3099.5
4	MAY	1982	600	4.205	3153.8	-61	3095.8
4	MAY	1982	700	4.200	3150.0	-61	3092.0
4	MAY	1982	800	4.198	3148.5	-61	3090.5
4	MAY	1982	900	4.195	3146.3	-61	3088.3
4	MAY	1982	1000	4.196	3147.0	-61	3089.0
4	MAY	1982	1100	4.199	3149.3	-61	3091.3

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
4	MAY	1982	1200	4.192	3144.0	-61	3086.0
4	MAY	1982	1300	4.170	3127.5	-61	3069.5
4	MAY	1982	1400	4.150	3112.5	-61	3054.5
4	MAY	1982	1500	4.129	3096.8	-61	3038.8
4	MAY	1982	1600	4.070	3052.5	-61	2994.5
4	MAY	1982	1700	4.039	3029.3	-61	2971.3
4	MAY	1982	1800	4.000	3000.0	-61	2942.0
4	MAY	1982	1900	3.873	2904.8	-60	2847.8
4	MAY	1982	2000	3.770	2827.5	-60	2770.5
4	MAY	1982	2100	3.830	2872.5	-60	2815.5
4	MAY	1982	2113	3.889	2916.8	-60	2859.8
4	MAY	1982	2200	3.790	2842.5	-60	2785.5
4	MAY	1982	2310	3.782	2836.5	-60	2779.5
5	MAY	1982	0	3.720	2790.0	-59	2734.0
5	MAY	1982	10	3.709	2781.8	-59	2725.8
5	MAY	1982	20	3.701	2775.8	-59	2719.8
5	MAY	1982	30	3.704	2778.0	-59	2722.0
5	MAY	1982	40	3.711	2783.3	-59	2727.3
5	MAY	1982	50	3.720	2790.0	-59	2734.0
5	MAY	1982	55	3.725	2793.8	-59	2737.8
5	MAY	1982	100	3.722	2791.5	-59	2735.5
5	MAY	1982	135	3.689	2766.8	-59	2710.8
5	MAY	1982	200	3.685	2763.8	-59	2707.8
5	MAY	1982	300	3.680	2760.0	-59	2704.0
5	MAY	1982	400	3.676	2757.0	-59	2701.0
5	MAY	1982	500	3.693	2769.8	-59	2713.8
5	MAY	1982	600	3.669	2751.8	-59	2695.8
5	MAY	1982	700	3.604	2703.0	-59	2647.0
5	MAY	1982	800	3.540	2655.0	-58	2600.0
5	MAY	1982	900	3.478	2608.5	-58	2553.5
5	MAY	1982	1000	3.411	2558.3	-57	2504.3
5	MAY	1982	1054	3.360	2520.0	-57	2466.0
5	MAY	1982	1100	3.330	2497.5	-57	2443.5
5	MAY	1982	1200	3.061	2295.8	-55	2243.8
5	MAY	1982	1300	2.837	2127.8	-53	2077.8
5	MAY	1982	1400	2.670	2002.5	-51	1954.5
5	MAY	1982	1430	2.640	1980.0	-51	1932.0
5	MAY	1982	1500	2.652	1989.0	-51	1941.0
5	MAY	1982	1600	2.730	2047.5	-51	1999.5
5	MAY	1982	1700	2.923	2192.3	-53	2142.3
5	MAY	1982	1800	3.159	2369.3	-56	2316.3
5	MAY	1982	1900	3.440	2580.0	-57	2526.0
5	MAY	1982	1910	3.472	2604.0	-58	2549.0
5	MAY	1982	2000	3.514	2635.5	-58	2580.5
5	MAY	1982	2100	3.702	2776.5	-59	2720.5
5	MAY	1982	2200	3.891	2918.3	-60	2861.3
5	MAY	1982	2300	4.120	3090.0	-61	3032.0
6	MAY	1982	0	4.220	3165.0	-61	3107.0
6	MAY	1982	100	4.318	3289.5	-61	3231.5
6	MAY	1982	200	4.440	3330.0	-61	3272.0
6	MAY	1982	300	4.614	3460.5	-60	3403.5
6	MAY	1982	317	4.670	3502.5	-61	3444.5
6	MAY	1982	400	4.622	3466.5	-60	3409.5
6	MAY	1982	500	4.613	3459.8	-60	3402.8
6	MAY	1982	600	4.620	3465.0	-60	3408.0
6	MAY	1982	700	4.719	3539.3	-61	3481.3
6	MAY	1982	800	4.826	3619.5	-61	3561.5
6	MAY	1982	802	4.835	3626.3	-61	3568.3
6	MAY	1982	900	4.822	3616.5	-61	3558.5
6	MAY	1982	1000	4.821	3615.8	-61	3557.8
6	MAY	1982	1100	4.821	3615.8	-61	3557.8
6	MAY	1982	1200	4.818	3613.5	-61	3555.5
6	MAY	1982	1300	4.814	3610.5	-61	3552.5
6	MAY	1982	1400	4.810	3607.5	-61	3549.5
6	MAY	1982	1500	4.810	3607.5	-61	3549.5
6	MAY	1982	1600	4.800	3600.0	-61	3542.0
6	MAY	1982	1700	4.800	3600.0	-61	3542.0
6	MAY	1982	1800	4.795	3596.3	-61	3538.3

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
6	MAY	1982	1900	4.769	3576.8	-61	3518.8
6	MAY	1982	2000	4.756	3567.0	-61	3509.0
6	MAY	1982	2100	4.748	3561.0	-61	3503.0
6	MAY	1982	2200	4.743	3557.3	-61	3499.3
6	MAY	1982	2300	4.740	3555.0	-61	3497.0
7	MAY	1982	0	4.747	3560.3	-61	3502.3
7	MAY	1982	100	4.753	3564.8	-61	3506.8
7	MAY	1982	200	4.760	3570.0	-61	3512.0
7	MAY	1982	300	4.740	3555.0	-61	3497.0
7	MAY	1982	400	4.740	3555.0	-61	3497.0
7	MAY	1982	500	4.746	3559.5	-61	3501.5
7	MAY	1982	600	4.752	3564.0	-61	3506.0
7	MAY	1982	700	4.733	3549.8	-61	3491.8
7	MAY	1982	800	4.730	3547.5	-61	3489.5
7	MAY	1982	900	4.718	3538.5	-61	3480.5
7	MAY	1982	1000	4.705	3528.8	-61	3470.8
7	MAY	1982	1100	4.700	3525.0	-61	3467.0
7	MAY	1982	1200	4.700	3525.0	-61	3467.0
7	MAY	1982	1300	4.700	3525.0	-61	3467.0
7	MAY	1982	1400	4.700	3525.0	-61	3467.0
7	MAY	1982	1500	4.700	3525.0	-61	3467.0
7	MAY	1982	1600	4.698	3523.5	-61	3465.5
7	MAY	1982	1700	4.690	3517.5	-61	3459.5
7	MAY	1982	1800	4.680	3510.0	-61	3452.0
7	MAY	1982	1900	4.675	3506.3	-61	3448.3
7	MAY	1982	2000	4.677	3507.8	-61	3449.8
7	MAY	1982	2100	4.677	3507.8	-61	3449.8
7	MAY	1982	2200	4.677	3507.8	-61	3449.8
7	MAY	1982	2300	4.678	3508.5	-61	3450.5
8	MAY	1982	0	4.678	3508.5	-61	3450.5
8	MAY	1982	100	4.690	3517.5	-61	3459.5
8	MAY	1982	200	4.690	3517.5	-61	3459.5
8	MAY	1982	300	4.690	3517.5	-61	3459.5
8	MAY	1982	400	4.690	3517.5	-61	3459.5
8	MAY	1982	500	4.687	3515.3	-61	3457.3
8	MAY	1982	600	4.685	3513.8	-61	3455.8
8	MAY	1982	700	4.682	3511.5	-61	3453.5
8	MAY	1982	800	4.671	3503.3	-61	3445.3
8	MAY	1982	900	4.659	3494.3	-60	3437.3
8	MAY	1982	1000	4.646	3484.5	-60	3427.5
8	MAY	1982	1100	4.637	3477.8	-60	3420.8
8	MAY	1982	1200	4.647	3485.3	-60	3428.3
8	MAY	1982	1300	4.660	3495.0	-60	3438.0
8	MAY	1982	1400	4.660	3495.0	-60	3438.0
8	MAY	1982	1500	4.665	3498.8	-60	3441.8
8	MAY	1982	1600	4.665	3498.8	-60	3441.8
8	MAY	1982	1700	4.670	3502.5	-61	3444.5
8	MAY	1982	1800	4.679	3509.3	-61	3451.3
8	MAY	1982	1900	4.688	3516.0	-61	3458.0
8	MAY	1982	2000	4.697	3522.8	-61	3464.8
8	MAY	1982	2100	4.706	3529.5	-61	3471.5
8	MAY	1982	2200	4.715	3536.3	-61	3478.3
8	MAY	1982	2340	4.724	3543.0	-61	3485.0
9	MAY	1982	0	4.713	3534.8	-61	3476.8
9	MAY	1982	100	4.690	3517.5	-61	3459.5
9	MAY	1982	200	4.690	3517.5	-61	3459.5
9	MAY	1982	300	4.688	3516.0	-61	3458.0
9	MAY	1982	400	4.690	3517.5	-61	3459.5
9	MAY	1982	500	4.690	3517.5	-61	3459.5
9	MAY	1982	600	4.688	3516.0	-61	3458.0
9	MAY	1982	700	4.688	3517.5	-61	3459.5
9	MAY	1982	800	4.686	3514.5	-61	3456.5
9	MAY	1982	900	4.684	3513.0	-61	3455.0
9	MAY	1982	1000	4.690	3517.5	-61	3459.5
9	MAY	1982	1100	4.689	3516.8	-61	3458.8
9	MAY	1982	1200	4.677	3507.8	-61	3449.8
9	MAY	1982	1300	4.680	3510.0	-61	3452.0
9	MAY	1982	1400	4.680	3510.0	-61	3452.0

FRAM 4 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
9	MAY	1982	1500	4.678	3508.5	-61	3450.5
9	MAY	1982	1600	4.680	3510.0	-61	3452.0
9	MAY	1982	1700	4.678	3508.5	-61	3450.5
9	MAY	1982	1800	4.680	3510.0	-61	3452.0
9	MAY	1982	1900	4.670	3502.5	-61	3444.5
9	MAY	1982	2000	4.666	3499.5	-60	3442.5
9	MAY	1982	2100	4.662	3496.5	-60	3439.5
9	MAY	1982	2200	4.665	3491.3	-60	3434.3
9	MAY	1982	2222	4.660	3495.0	-60	3438.0

Gravity

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Gravity readings on Fram IV were taken with a LaCoste & Romberg Model G gravimeter as part of the University of Oslo science program.

The instrument, mounted on a stand frozen into the ice, was equipped with variable damping to filter wave motion. The stand located in the LDGO/NPI workshop, extended through a hole in the floor. Instrument height was 0.3 meter above sea level.

The gravity readings were tied into a surveyed base value at Longyearbyen Airport, Svalbard, of 982.962995 gals. The relative readings at Longyearbyen were:

22 March	1500 GMT	6688.61 mgal.
11 May	1100 GMT	6690.27 mgal.
	drift	1.66 mgal.

The drift of somewhat more than 1 mgal. per month was assumed to be linear for lack of other information, and a drift correction has been applied to the data.

In addition to the gravity values taken during the Fram IV drift, additional gravity measurements were taken at various positions away from the Fram IV drift track. Although these measurements are not included in the listings presented in this report, Figure 5 shows their locations which are over the northern flank of the Yermak Plateau and the adjacent abyssal plain. Also included in Figure 5 are those areas along the Fram IV drift track where multichannel seismic refraction lines were taken, although these data are not included in this report.

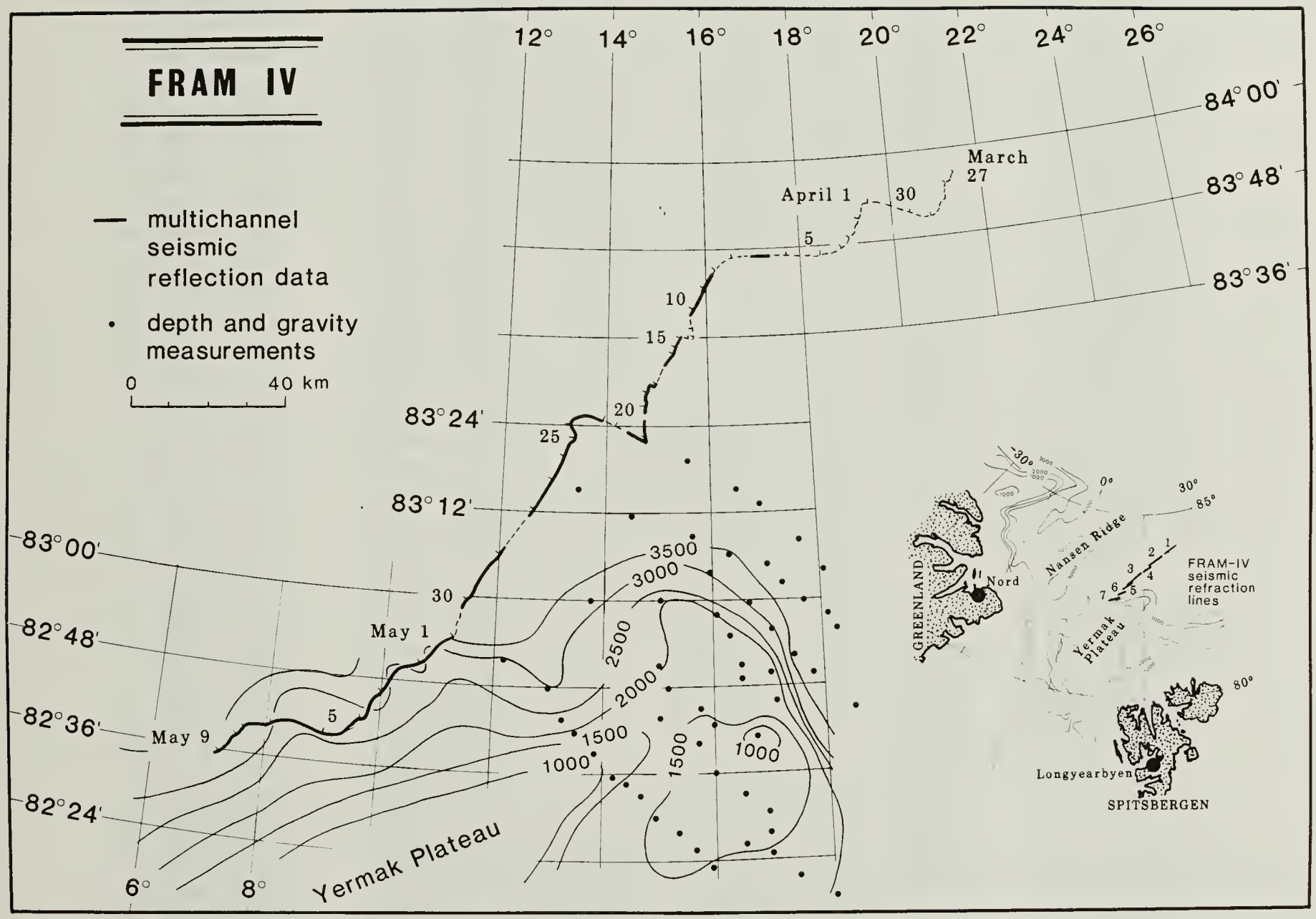

Figure 5 Postions of multichannel seismic reflection lines, depth and gravity measurements along and away from FRAM IV drift track.

TABLE 6

FRAM-IV GRAVITY DATA

DATE	GMT	Reading	Mgals.	Gravity
2903	1015	6574.4	6896.86	983 171.52
3103	0930	6573.2	6895.60	983 170.34
3103	2010	6572.9	6895.28	983 169.97
0104	1545	6571.6	6893.92	983 168.64
0204	0947	6570.2	6892.44	983 167.18
0204	1827	6569.4	6891.60	983 166.39
0304	0136	6568.4	6890.55	983 165.32
0304	1311	6567.6	6889.71	983 164.52
0304	2009	6566.8	6888.87	983 163.67
0404	1233	6566.7	6888.77	983 163.59
0404	2127	6567.1	6889.19	983 164.02
0604	0035	6572.7	6895.07	983 169.94
0604	1054	6574.0	6896.44	983 171.31
0604	1600	6574.6	6897.07	983 171.96
0604	2320	6575.5	6898.01	983 172.91
0704	0925	6579.0	6901.69	983 176.60
0704	1800	6581.5	6904.43	983 179.36
0804	0013	6582.5	6905.36	983 180.30
0904	1343	6578.8	6901.48	983 176.46
0904	1955	6578.0	6900.64	983 175.63
1004	0615	6575.5	6898.01	983 173.02
1004	2010	6573.0	6895.39	983 170.42
1104	1048	6572.8	6895.18	983 170.23
1104	1655	6572.6	6894.97	983 170.03
1204	0000	6572.6	6894.97	983 170.04
1204	1114	6572.6	6894.97	983 170.05
1204	2255	6573.0	6895.39	983 170.49
1304	0950	6573.3	6895.70	983 170.81
1304	1620	6573.3	6895.70	983 170.82
1304	2305	6573.6	6896.02	983 171.16
1404	0505	6573.4	6895.81	983 170.95
1404	1330	6573.3	6895.70	983 170.85
1404	2000	6573.5	6895.91	983 171.07
1504	0210	6572.8	6895.18	983 170.35
1604	0030	6571.7	6894.02	983 169.22
1704	0240	6568.4	6890.55	983 165.78
1704	1334	6568.0	6890.13	983 165.38
1804	1338	6568.3	6890.45	983 165.74
1804	1500	6568.33	6890.48	983 165.78
1904	0735	6567.0	6889.08	983 164.39
1904	0915	6566.9	6888.98	983 164.29
1904	1535	6565.6	6887.61	983 162.93
1904	2015	6565.4	6887.40	983 162.72
2004	0700	6563.8	6885.72	983 161.06
2004	0805	6563.7	6885.62	983 160.96
2004	1020	6563.23	6885.13	983 160.48
2004	1300	6562.65	6884.52	983 159.87
2004	1735	6562.5	6884.36	983 159.72
2004	2050	6561.72	6883.54	983 158.90
2104	0210	6561.63	6883.45	983 158.82
2104	0615	6561.74	6883.56	983 158.93
2104	2000	6564.85	6886.83	983 162.23
2104	2030	6560.0	6881.73	983 156.22
2204	0855	6574.5	6896.96	983 172.37
2204	1535	6574.9	6897.38	983 172.80
2204	2000	6577.6	6900.22	983 175.65

FRAM-IV GRAVITY DATA

DATE	GMT	Reading	Mgals.	Gravity
2304	1005	6578.8	6901.48	983 176.92
2304	2320	6577.4	6900.0	983 175.46
2404	0850	6577.1	6899.69	983 175.16
2404	1320	6577.9	6900.53	983 176.01
2404	1510	6579.4	6902.11	983 177.60
2404	1900	6579.5	6902.21	983 177.70
2504	0235	6578.7	6901.37	983 176.87
2504	0515	6580.1	6902.84	983 178.37
2504	1600	6581.5	6904.31	983 179.83
2504	1920	6581.2	6904.0	983 179.53
2604	0720	6579.7	6902.42	983 177.96
2604	1240	6577.8	6900.43	983 175.97
2604	1730	6576.9	6899.48	983 175.04
2904	1025	6520.6	6840.36	983 116.00
2904	2010	6508.4	6827.55	983 103.21
2904	2310	6507.1	6826.19	983 101.85
3004	0645	6504.0	6822.93	983 098.60
3004	1200	6502.5	6821.36	983 097.04
3004	1310	6500.8	6819.57	983 095.25
3004	1400	6500.9	6819.68	983 095.36
3004	1900	6500.6	6819.36	983 095.05
0105	0300	6504.8	6823.77	983 099.47
0105	0530	6505.1	6824.09	983 099.79
0105	1620	6512.6	6831.96	983 107.68
0105	2215	6514.0	6833.43	983 109.16
0205	0900	6511.6	6830.91	983 106.65
0205	1050	6514.5	6833.96	983 109.70
0205	1230	6511.9	6831.23	983 106.98
0205	1445	6514.3	6833.75	983 109.50
0205	1900	6514.0	6833.43	983 109.19
0305	0650	6510.5	6829.76	983 105.53
0305	0925	6513.4	6832.91	983 108.69
0305	1200	6513.8	6833.22	983 109.00
0305	1630	6514.3	6833.75	983 109.54
0305	2345	6511.5	6830.81	983 106.61
0405	0415	6512.3	6831.65	983 107.45
0405	1420	6511.1	6830.39	983 106.21
0405	1600	6511.8	6831.12	983 106.94
0505	0915	6552.2	6873.54	983 149.38
0505	1130	6559.0	6880.68	983 156.52
0505	1430	6564.2	6886.14	983 161.99
0505	1915	6560.5	6882.26	983 158.12
0505	2300	6550.3	6871.55	983 147.42
0605	0130	6545.0	6865.98	983 141.85
0605	1145	6537.5	6858.11	983 133.99
0605	1310	6539.5	6860.21	983 135.74
0605	1500	6539.4	6860.10	983 135.98
0605	1600	6539.1	6859.79	983 135.68
0605	1730	6538.8	6859.47	983 135.36
0705	0100	6536.4	6856.95	983 132.84
0705	0240	6536.5	6857.06	983 132.96
0705	0610	6537.0	6857.58	983 133.49
0705	0800	6535.8	6856.32	983 132.23
0705	1500	6533.3	6853.70	983 129.62

FRAM IV GRAVITY DATA

DATE	GMT	Reading	Mgals.	Gravity
0705	1915	6532.5	6852.86	983 128.78
0705	2320	6529.9	6850.13	983 126.07
0805	0830	6527.8	6847.92	983 123.46
0805	1020	6528.2	6848.34	983 124.28
0805	1220	6525.8	6845.82	983 121.36
0805	1455	6524.5	6844.46	983 120.00
0805	1630	6525.5	6845.51	983 121.47
0805	2020	6523.2	6843.09	983 119.05
0805	2230	6522.4	6842.25	983 118.21
0805	2340	6522.4	6842.25	983 118.21
0905	0220	6522.3	6842.15	983 118.12
0905	0430	6522.2	6842.04	983 118.02

Navigation - Camp TRISTEN

All positions were obtained by using a Decca Model No. 801 satellite receiver which was transferred from Fram IV after that station had been established. While the Decca receiver also utilizes the U.S. Navy Transit Satellite Navigation System, it records only degrees, minutes and tenths of minutes for latitude and longitude, while the Magnavox 1502 records additional satellite parameters (see page 7). Therefore, the positions presented here consist of latitude and longitude information only and not a more complete set of data as in the Fram IV listings.

While it is possible to perform Kalman filtering on the data set as it exists (Thorndike and Manley, 1980), time intervals between successive data points at several critical periods in the drift proved to be too extensive for the program to handle. Thus, a Kalman determination of hourly position was not performed.

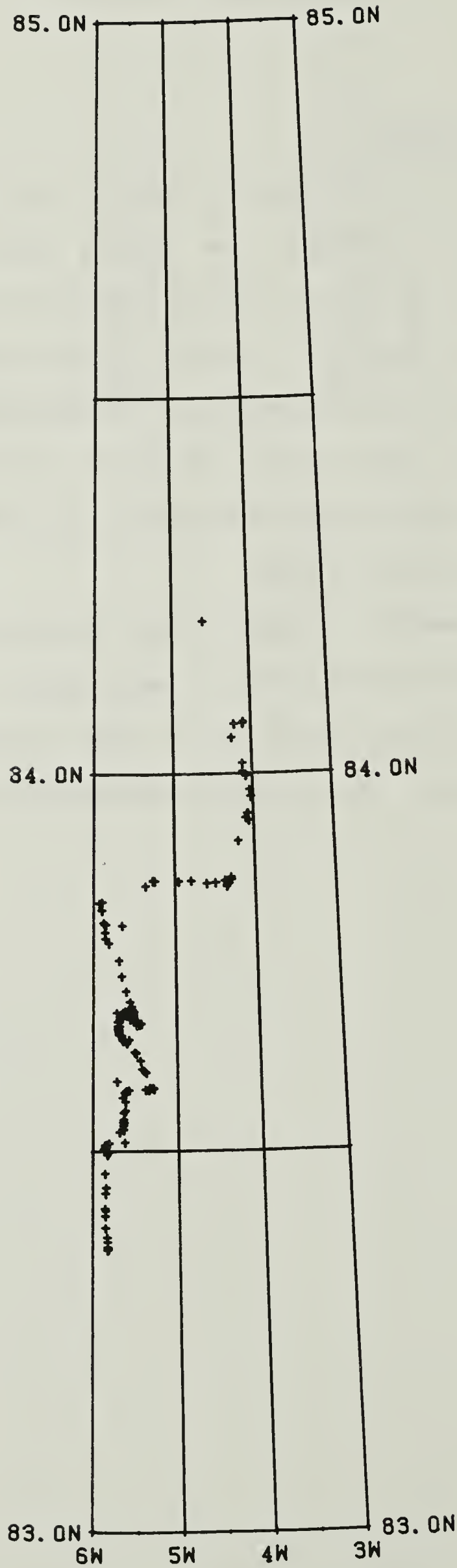

Figure 6 Drift track of the satellite camp TRISTEN as determined by Decca fixes.

POSITIONS OF TRISTEN

DETERMINED BY SATELLITE NAVIGATION

Key to Column Headings:

SN	Serial number of satellite receiver unit
DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
LATITUDE	North latitude in decimal degrees
LONGITUDE	Longitude in decimal degrees, (negative implies west longitude)
EL	Maximum elevation of satellite above horizon in degrees
I	Number of iterations in the computation
DP	Number of 23/28 - second Doppler counts
SAT	Last three digits of satellite identification number
STDY	Standard deviation of latitude in meters
STDX	Standard deviation of longitude in meters

Note: The Decca receiver does not record satellite parameters other than latitude and longitude.

TABLE 7

TRISTEN NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
20	26	MAR	1982	1440	84.203331	-4.586667	0	0	0	0	0.0	0.0
20	30	MAR	1982	1638	84.069000	-4.092000	0	0	0	0	0.0	0.0
20	30	MAR	1982	1850	84.067001	-4.104167	0	0	0	0	0.0	0.0
20	31	MAR	1982	836	84.066002	-4.213833	0	0	0	0	0.0	0.0
20	31	MAR	1982	1706	84.048164	-4.247334	0	0	0	0	0.0	0.0
20	1	APR	1982	626	84.013664	-4.116667	0	0	0	0	0.0	0.0
20	1	APR	1982	1000	84.002998	-4.116500	0	0	0	0	0.0	0.0
20	1	APR	1982	1652	83.978668	-4.031167	0	0	0	0	0.0	0.0
20	1	APR	1982	2020	83.969666	-4.022500	0	0	0	0	0.0	0.0
20	2	APR	1982	602	83.947998	-4.063334	0	0	0	0	0.0	0.0
20	2	APR	1982	628	83.947998	-4.070000	0	0	0	0	0.0	0.0
20	2	APR	1982	938	83.942001	-4.094666	0	0	0	0	0.0	0.0
20	2	APR	1982	1150	83.938332	-4.058333	0	0	0	0	0.0	0.0
20	2	APR	1982	1408	83.900002	-4.115000	0	0	0	0	0.0	0.0
20	4	APR	1982	704	83.863831	-4.299833	0	0	0	0	0.0	0.0
20	4	APR	1982	1150	83.860664	-4.293833	0	0	0	0	0.0	0.0
20	4	APR	1982	1640	83.855164	-4.350000	0	0	0	0	0.0	0.0
20	4	APR	1982	1710	83.854836	-4.345500	0	0	0	0	0.0	0.0
20	4	APR	1982	1854	83.851837	-4.357000	0	0	0	0	0.0	0.0
20	4	APR	1982	2040	83.860001	-4.377333	0	0	0	0	0.0	0.0
20	5	APR	1982	614	83.857170	-4.497833	0	0	0	0	0.0	0.0
20	5	APR	1982	830	83.856003	-4.605167	0	0	0	0	0.0	0.0
20	5	APR	1982	1710	83.859665	-4.797000	0	0	0	0	0.0	0.0
20	5	APR	1982	2238	83.858665	-4.955167	0	0	0	0	0.0	0.0
20	6	APR	1982	634	83.859169	-5.249667	0	0	0	0	0.0	0.0
20	6	APR	1982	728	83.859665	-5.274333	0	0	0	0	0.0	0.0
20	6	APR	1982	1102	83.852669	-5.359167	0	0	0	0	0.0	0.0
20	7	APR	1982	632	83.830666	-5.896500	0	0	0	0	0.0	0.0
20	7	APR	1982	818	83.828835	-5.927667	0	0	0	0	0.0	0.0
20	7	APR	1982	1434	83.819504	-5.901000	0	0	0	0	0.0	0.0
20	7	APR	1982	2234	83.803001	-5.878667	0	0	0	0	0.0	0.0
20	7	APR	1982	2324	83.800835	-5.853833	0	0	0	0	0.0	0.0
20	7	APR	1982	2348	83.800835	-5.863333	0	0	0	0	0.0	0.0
20	8	APR	1982	726	83.790169	-5.861167	0	0	0	0	0.0	0.0
20	8	APR	1982	1056	83.781830	-5.852000	0	0	0	0	0.0	0.0
20	8	APR	1982	1820	83.775833	-5.816667	0	0	0	0	0.0	0.0
20	9	APR	1982	1108	83.752831	-5.686666	0	0	0	0	0.0	0.0
20	9	APR	1982	1942	83.732002	-5.651667	0	0	0	0	0.0	0.0
20	10	APR	1982	620	83.711670	-5.603667	0	0	0	0	0.0	0.0
20	10	APR	1982	1138	83.697166	-5.554833	0	0	0	0	0.0	0.0
20	10	APR	1982	1342	83.691170	-5.537500	0	0	0	0	0.0	0.0
20	10	APR	1982	1652	83.686668	-5.525667	0	0	0	0	0.0	0.0
20	10	APR	1982	1714	83.686996	-5.523833	0	0	0	0	0.0	0.0
20	10	APR	1982	1918	83.684502	-5.507167	0	0	0	0	0.0	0.0
20	10	APR	1982	2108	83.679832	-5.510500	0	0	0	0	0.0	0.0
20	11	APR	1982	700	83.672668	-5.471833	0	0	0	0	0.0	0.0
20	11	APR	1982	1216	83.668503	-5.421333	0	0	0	0	0.0	0.0
20	11	APR	1982	1806	83.667503	-5.441833	0	0	0	0	0.0	0.0
20	11	APR	1982	1920	83.666336	-5.477833	0	0	0	0	0.0	0.0
20	12	APR	1982	638	83.667999	-5.457833	0	0	0	0	0.0	0.0
20	12	APR	1982	1902	83.674500	-5.510500	0	0	0	0	0.0	0.0
20	12	APR	1982	2340	83.674667	-5.554333	0	0	0	0	0.0	0.0
20	13	APR	1982	1330	83.683670	-5.572834	0	0	0	0	0.0	0.0
20	13	APR	1982	1356	83.684669	-5.595334	0	0	0	0	0.0	0.0
20	13	APR	1982	1514	83.683670	-5.587667	0	0	0	0	0.0	0.0
20	13	APR	1982	1550	83.685165	-5.572333	0	0	0	0	0.0	0.0
20	13	APR	1982	1816	83.683334	-5.593333	0	0	0	0	0.0	0.0
20	13	APR	1982	1916	83.684998	-5.562334	0	0	0	0	0.0	0.0
20	13	APR	1982	2102	83.684334	-5.586722	0	0	0	0	0.0	0.0
20	13	APR	1982	2250	83.683998	-5.619833	0	0	0	0	0.0	0.0
20	14	APR	1982	640	83.683670	-5.642833	0	0	0	0	0.0	0.0
20	14	APR	1982	710	83.685669	-5.616667	0	0	0	0	0.0	0.0
20	14	APR	1982	826	83.683334	-5.718333	0	0	0	0	0.0	0.0
20	14	APR	1982	844	83.681664	-5.648167	0	0	0	0	0.0	0.0
20	14	APR	1982	1936	83.679497	-5.657166	0	0	0	0	0.0	0.0
20	15	APR	1982	42	83.681000	-5.667500	0	0	0	0	0.0	0.0
20	15	APR	1982	630	83.678337	-5.674667	0	0	0	0	0.0	0.0
20	15	APR	1982	834	83.675667	-5.651333	0	0	0	0	0.0	0.0

TRISTEN NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
20	15	APR	1982	1624	83.674004	-5.681167	0	0	0	0	0.0	0.0
20	15	APR	1982	2102	83.673500	-5.682500	0	0	0	0	0.0	0.0
20	16	APR	1982	648	83.671165	-5.707000	0	0	0	0	0.0	0.0
20	16	APR	1982	1126	83.663834	-5.698500	0	0	0	0	0.0	0.0
20	16	APR	1982	1312	83.664833	-5.705000	0	0	0	0	0.0	0.0
20	16	APR	1982	1726	83.664330	-5.681667	0	0	0	0	0.0	0.0
20	16	APR	1982	1910	83.662498	-5.705167	0	0	0	0	0.0	0.0
20	17	APR	1982	544	83.660667	-5.705667	0	0	0	0	0.0	0.0
20	17	APR	1982	848	83.659836	-5.688334	0	0	0	0	0.0	0.0
20	17	APR	1982	1254	83.658836	-5.690500	0	0	0	0	0.0	0.0
20	17	APR	1982	1440	83.657997	-5.696500	0	0	0	0	0.0	0.0
20	17	APR	1982	1828	83.655998	-5.693000	0	0	0	0	0.0	0.0
20	17	APR	1982	1940	83.658997	-5.688167	0	0	0	0	0.0	0.0
20	17	APR	1982	2018	83.655830	-5.694167	0	0	0	0	0.0	0.0
20	18	APR	1982	44	83.654831	-5.690166	0	0	0	0	0.0	0.0
20	18	APR	1982	616	83.653664	-5.688500	0	0	0	0	0.0	0.0
20	18	APR	1982	1118	83.652000	-5.656833	0	0	0	0	0.0	0.0
20	18	APR	1982	1906	83.648331	-5.650333	0	0	0	0	0.0	0.0
20	18	APR	1982	2144	83.645500	-5.643000	0	0	0	0	0.0	0.0
20	19	APR	1982	28	83.643501	-5.596667	0	0	0	0	0.0	0.0
20	19	APR	1982	216	83.642670	-5.597167	0	0	0	0	0.0	0.0
20	19	APR	1982	844	83.647331	-5.567167	0	0	0	0	0.0	0.0
20	19	APR	1982	1524	83.630165	-5.496833	0	0	0	0	0.0	0.0
20	19	APR	1982	1628	83.629333	-5.488500	0	0	0	0	0.0	0.0
20	19	APR	1982	1708	83.629166	-5.480667	0	0	0	0	0.0	0.0
20	20	APR	1982	10	83.618500	-5.429167	0	0	0	0	0.0	0.0
20	20	APR	1982	640	83.607330	-5.411334	0	0	0	0	0.0	0.0
20	20	APR	1982	806	83.605003	-5.384333	0	0	0	0	0.0	0.0
20	20	APR	1982	1022	83.602997	-5.365334	0	0	0	0	0.0	0.0
20	21	APR	1982	6	83.581169	-5.274833	0	0	0	0	0.0	0.0
20	21	APR	1982	608	83.582664	-5.274000	0	0	0	0	0.0	0.0
20	21	APR	1982	716	83.583504	-5.280334	0	0	0	0	0.0	0.0
20	21	APR	1982	946	83.581001	-5.334833	0	0	0	0	0.0	0.0
20	21	APR	1982	1114	83.583832	-5.321167	0	0	0	0	0.0	0.0
20	21	APR	1982	1300	83.581169	-5.372833	0	0	0	0	0.0	0.0
20	21	APR	1982	1628	83.593002	-5.714667	0	0	0	0	0.0	0.0
20	21	APR	1982	1814	83.580170	-5.568500	0	0	0	0	0.0	0.0
20	21	APR	1982	2036	83.579170	-5.604167	0	0	0	0	0.0	0.0
20	21	APR	1982	2336	83.577332	-5.625667	0	0	0	0	0.0	0.0
20	22	APR	1982	728	83.570000	-5.646500	0	0	0	0	0.0	0.0
20	22	APR	1982	1018	83.564835	-5.616000	0	0	0	0	0.0	0.0
20	22	APR	1982	1352	83.552666	-5.618500	0	0	0	0	0.0	0.0
20	22	APR	1982	1540	83.550835	-5.635500	0	0	0	0	0.0	0.0
20	22	APR	1982	2012	83.541168	-5.638167	0	0	0	0	0.0	0.0
20	22	APR	1982	2202	83.537498	-5.641500	0	0	0	0	0.0	0.0
20	22	APR	1982	2248	83.537003	-5.629500	0	0	0	0	0.0	0.0
20	23	APR	1982	34	83.533501	-5.639833	0	0	0	0	0.0	0.0
20	23	APR	1982	328	83.528000	-5.637667	0	0	0	0	0.0	0.0
20	23	APR	1982	552	83.525002	-5.689667	0	0	0	0	0.0	0.0
20	23	APR	1982	1120	83.511330	-5.624834	0	0	0	0	0.0	0.0
20	23	APR	1982	1822	83.510170	-5.809333	0	0	0	0	0.0	0.0
20	23	APR	1982	2308	83.508003	-5.840500	0	0	0	0	0.0	0.0
20	24	APR	1982	612	83.507668	-5.859833	0	0	0	0	0.0	0.0
20	24	APR	1982	836	83.504669	-5.854000	0	0	0	0	0.0	0.0
20	24	APR	1982	1012	83.502502	-5.871833	0	0	0	0	0.0	0.0
20	24	APR	1982	1836	83.500832	-5.851500	0	0	0	0	0.0	0.0
20	24	APR	1982	2200	83.497665	-5.817833	0	0	0	0	0.0	0.0
20	25	APR	1982	22	83.495003	-5.833167	0	0	0	0	0.0	0.0
20	25	APR	1982	1254	83.470665	-5.859334	0	0	0	0	0.0	0.0
20	25	APR	1982	1714	83.452003	-5.845667	0	0	0	0	0.0	0.0
20	25	APR	1982	1902	83.444504	-5.853333	0	0	0	0	0.0	0.0
20	26	APR	1982	22	83.421501	-5.853333	0	0	0	0	0.0	0.0
20	26	APR	1982	208	83.415001	-5.853833	0	0	0	0	0.0	0.0
20	26	APR	1982	744	83.399002	-5.851167	0	0	0	0	0.0	0.0
20	26	APR	1982	932	83.425331	-5.859500	0	0	0	0	0.0	0.0
20	26	APR	1982	1058	83.386497	-5.832833	0	0	0	0	0.0	0.0
20	26	APR	1982	1244	83.380333	-5.827333	0	0	0	0	0.0	0.0
20	26	APR	1982	1426	83.373665	-5.825000	0	0	0	0	0.0	0.0

TRISTEN NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
20	26	APR	1982	1544	83.371498	-5.821500	0	0	0	0	0.0	0.0
20	26	APR	1982	1612	83.370163	-5.830000	0	0	0	0	0.0	0.0

Depth Soundings - Camp TRISTEN

Continuous recordings of ocean depths were made at Tristen using a 12 KHz Edo sounder system with the transducer suspended through a hydrographic well at a depth of 6 m below sea level. In data reduction, for areas with slightly to moderately varying topography, depths were scaled at hourly intervals and at 5 minute intervals for more rapidly changing topography.

The actual physical measurement obtained from the chart records is a two-way reflection time measured from the transducer to the bottom and back. The "uncorrected" depth is defined as the two-way reflection time multiplied by one-half the nominal speed of sound in sea water (1500 m/sec). A further refinement of depth determination includes a correction for the sound speed profile in particular geographic areas of the ocean and is listed as Vel (corr). Those used are from Matthews Tables (1939). Lastly, the transducer's depth below sea level is added to the corrected depth and it is this final corrected depth which is shown in the last column under Meters (corr).

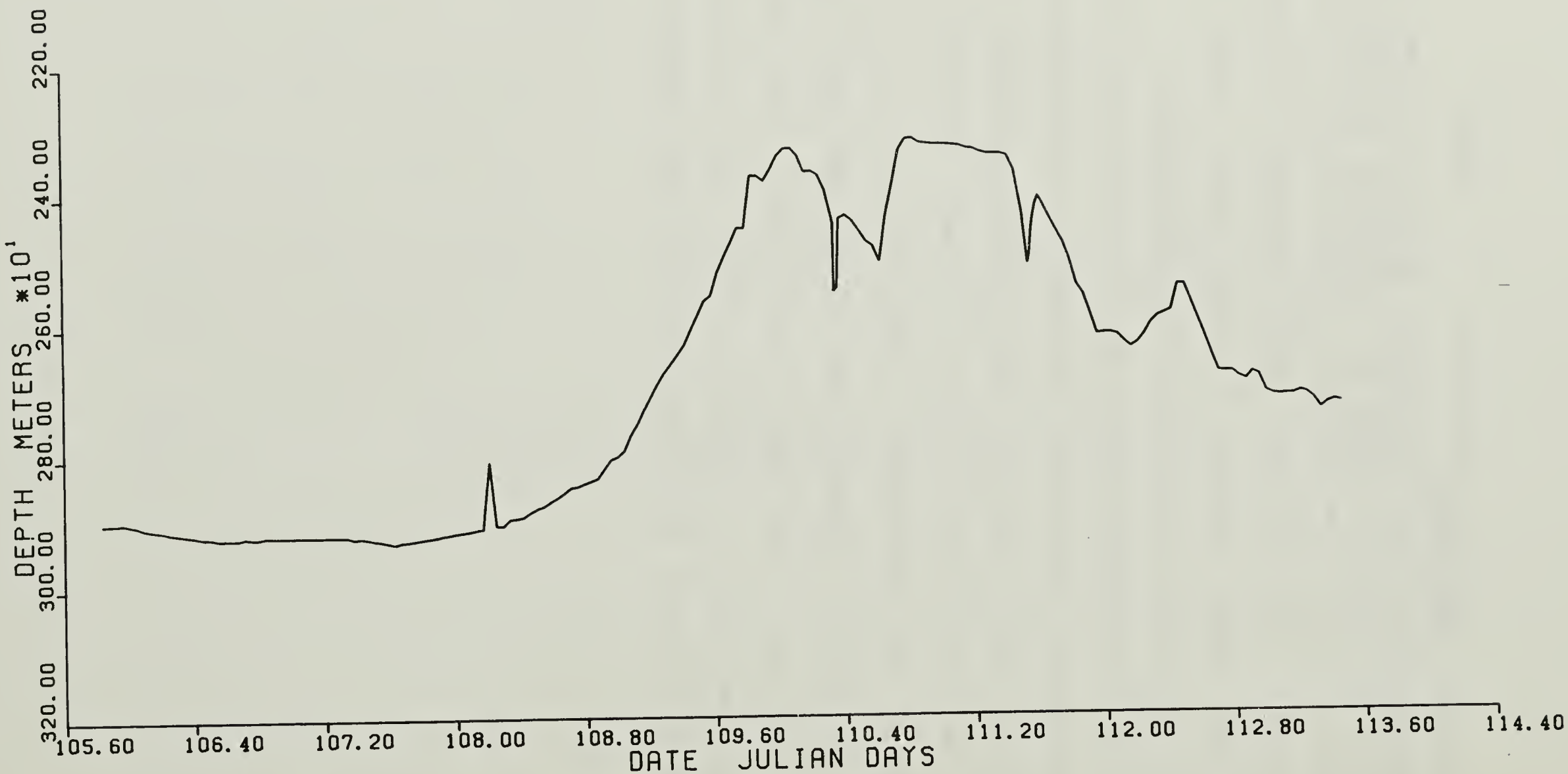

Figure 7 Ocean depth profile along drift track of satellite camp TRISTEN.

DEPTH DATA FROM TRISTEN

Key to Column Headings

DY	Day
MON	Month
YEAR	Year
GMT	Greenwich Mean Time
Seconds	Two-way travel time from surface to bottom
Meters (Uncorr)	Two-way travel time x 750 m per second
Vel Corr	Matthews correction for velocity of sound in sea water
Meters (Corr)	Absolute depth including Matthews correction and transducer depth

TABLE 8

TRISTEN DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
15	APR	1982	2000	3.946	2959.5	-61	2904.5
15	APR	1982	2100	3.945	2958.8	-61	2903.8
15	APR	1982	2200	3.945	2958.8	-61	2903.8
15	APR	1982	2300	3.943	2957.3	-61	2902.3
16	APR	1982	0	3.947	2960.3	-61	2905.3
16	APR	1982	100	3.950	2962.5	-61	2907.5
16	APR	1982	200	3.955	2966.3	-61	2911.3
16	APR	1982	300	3.958	2968.5	-61	2913.5
16	APR	1982	400	3.960	2970.0	-61	2915.0
16	APR	1982	500	3.962	2971.5	-61	2916.5
16	APR	1982	600	3.965	2973.8	-61	2918.8
16	APR	1982	700	3.967	2975.3	-61	2920.3
16	APR	1982	800	3.969	2976.8	-61	2921.8
16	APR	1982	900	3.971	2978.3	-61	2923.3
16	APR	1982	1000	3.973	2979.8	-61	2924.8
16	APR	1982	1100	3.976	2982.0	-61	2927.0
16	APR	1982	1200	3.976	2892.0	-61	2927.0
16	APR	1982	1300	3.979	2984.3	-61	2929.3
16	APR	1982	1400	3.979	2984.3	-61	2929.3
16	APR	1982	1500	3.979	2984.3	-61	2929.3
16	APR	1982	1600	3.979	2984.3	-61	2929.3
16	APR	1982	1700	3.975	2981.3	-61	2926.3
16	APR	1982	1800	3.798	2983.5	-61	2928.5
16	APR	1982	1900	3.977	2982.8	-61	2927.8
16	APR	1982	2000	3.974	2980.5	-61	2925.5
16	APR	1982	2100	3.975	2981.3	-61	2926.3
16	APR	1982	2200	3.975	2981.3	-61	2926.3
16	APR	1982	2300	3.975	2981.3	-61	2926.3
17	APR	1982	0	3.975	2981.3	-61	2926.3
17	APR	1982	100	3.975	2981.3	-61	2926.3
17	APR	1982	200	3.975	2981.3	-61	2926.3
17	APR	1982	300	3.975	2981.3	-61	2926.3
17	APR	1982	400	3.975	2981.3	-61	2926.3
17	APR	1982	500	3.975	2981.3	-61	2926.3
17	APR	1982	600	3.975	2981.3	-61	2926.3
17	APR	1982	700	3.975	2981.3	-61	2926.3
17	APR	1982	800	3.975	2981.3	-61	2926.3
17	APR	1982	900	3.980	2985.0	-61	2930.0
17	APR	1982	1000	3.978	2983.5	-61	2928.5
17	APR	1982	1100	3.980	2985.0	-61	2930.0
17	APR	1982	1200	3.983	2987.3	-61	2932.3
17	APR	1982	1300	3.985	2988.8	-61	2933.8
17	APR	1982	1400	3.988	2991.0	-61	2936.0
17	APR	1982	1500	3.991	2993.3	-61	2938.3
17	APR	1982	1600	3.987	2990.3	-61	2935.3
17	APR	1982	1700	3.986	2989.5	-61	2934.5
17	APR	1982	1800	3.984	2988.0	-61	2933.0
17	APR	1982	1900	3.981	2985.8	-61	2930.8
17	APR	1982	2000	3.979	2984.3	-61	2929.3
17	APR	1982	2100	3.977	2982.8	-61	2927.8
17	APR	1982	2200	3.974	2980.5	-61	2925.5
17	APR	1982	2300	3.972	2979.0	-61	2924.0
18	APR	1982	0	3.969	2976.8	-61	2921.8
18	APR	1982	100	3.967	2975.3	-61	2920.3
18	APR	1982	200	3.965	2973.8	-61	2918.8
18	APR	1982	300	3.962	2971.5	-61	2916.5
18	APR	1982	400	3.960	2970.0	-61	2915.0
18	APR	1982	500	3.957	2967.8	-61	2812.8
18	APR	1982	600	3.955	2966.3	-61	2911.3
18	APR	1982	700	3.955	2966.3	-61	2911.3
18	APR	1982	800	3.941	2955.8	-61	2900.8
18	APR	1982	900	3.940	2955.0	-61	2900.0
18	APR	1982	1000	3.937	2952.8	-61	2897.8
18	APR	1982	1100	3.928	2946.0	-61	2891.0
18	APR	1982	1200	3.920	2940.0	-61	2885.0
18	APR	1982	1300	3.915	2936.3	-61	2881.3
18	APR	1982	1400	3.906	2929.5	-61	2874.5
18	APR	1982	1500	3.898	2923.5	-61	2868.5

TRISTEN DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
18	APR	1982	1600	3.889	2916.8	-61	2861.8
18	APR	1982	1700	3.878	2908.5	-61	2853.5
18	APR	1982	1800	3.876	2907.0	-61	2852.0
18	APR	1982	1900	3.870	2902.5	-61	2847.5
18	APR	1982	2000	3.863	2897.3	-60	2843.3
18	APR	1982	2100	3.858	2893.5	-60	2839.5
18	APR	1982	2200	3.839	2879.3	-60	2825.3
18	APR	1982	2300	3.820	2865.0	-60	2811.0
19	APR	1982	0	3.814	2860.5	-60	2806.5
19	APR	1982	100	3.802	2851.5	-60	2797.5
19	APR	1982	200	3.770	2827.5	-60	2773.5
19	APR	1982	300	3.748	2811.0	-60	2757.0
19	APR	1982	400	3.720	2870.0	-60	2736.0
19	APR	1982	500	3.694	2770.5	-60	2716.5
19	APR	1982	600	3.667	2750.3	-60	2696.3
19	APR	1982	700	3.643	2732.3	-59	2679.3
19	APR	1982	800	3.625	2718.8	-59	2665.8
19	APR	1982	900	3.606	2704.5	-59	2651.5
19	APR	1982	1000	3.587	2960.5	-59	2637.5
19	APR	1982	1100	3.557	2667.8	-59	2614.8
19	APR	1982	1200	3.527	2645.3	-59	2592.3
19	APR	1982	1300	3.497	2622.8	-59	2569.8
19	APR	1982	1400	3.468	2614.5	-59	2561.5
19	APR	1982	1500	3.438	2578.5	-58	2526.5
19	APR	1982	1600	3.408	2556.0	-58	2504.0
19	APR	1982	1700	3.378	2533.5	-58	2481.5
19	APR	1982	1800	3.348	2511.0	-58	2459.0
19	APR	1982	1900	3.348	2511.0	-58	2459.0
19	APR	1982	2000	3.240	2430.0	-57	2379.0
19	APR	1982	2100	3.240	2430.0	-57	2379.0
19	APR	1982	2200	3.251	2438.3	-57	2387.3
19	APR	1982	2300	3.228	2421.0	-57	2370.0
20	APR	1982	0	3.199	2399.3	-57	2348.3
20	APR	1982	100	3.185	2388.8	-57	2337.8
20	APR	1982	200	3.184	2388.0	-57	2337.0
20	APR	1982	300	3.200	2400.0	-57	2349.0
20	APR	1982	400	3.233	2424.8	-57	2373.8
20	APR	1982	500	3.232	2424.0	-57	2373.0
20	APR	1982	600	3.240	2430.0	-57	2379.0
20	APR	1982	700	3.272	2454.0	-58	2402.0
20	APR	1982	800	3.330	2497.5	-58	2445.5
20	APR	1982	805	3.335	2501.3	-58	2449.3
20	APR	1982	810	3.339	2504.3	-58	2452.3
20	APR	1982	815	3.344	2508.0	-58	2556.0
20	APR	1982	817	3.346	2509.5	-58	2557.5
20	APR	1982	800	3.344	2508.0	-58	2556.0
20	APR	1982	825	3.342	2506.5	-58	2554.5
20	APR	1982	830	3.341	2505.8	-58	2553.8
20	APR	1982	835	3.338	2503.5	-58	2551.5
20	APR	1982	840	3.338	2503.5	-58	2551.5
20	APR	1982	900	3.330	2497.5	-58	2445.5
20	APR	1982	1000	3.323	2492.3	-58	2440.3
20	APR	1982	1100	3.335	2501.3	-58	2449.3
20	APR	1982	1200	3.356	2517.0	-58	2465.0
20	APR	1982	1300	3.377	2532.8	-58	2480.8
20	APR	1982	1400	3.398	2540.5	-58	2488.5
20	APR	1982	1500	3.419	2564.3	-58	2512.3
20	APR	1982	1600	3.325	2493.8	-58	2441.8
20	APR	1982	1700	3.258	2443.5	-57	2392.5
20	APR	1982	1800	3.190	2392.5	-57	2341.5
20	APR	1982	1900	3.167	2375.3	-57	2324.3
20	APR	1982	2000	3.166	2374.5	-57	2323.5
20	APR	1982	2100	3.176	2382.0	-57	2331.0
20	APR	1982	2200	3.178	2383.5	-57	2332.5
20	APR	1982	2300	3.379	2384.3	-57	2333.3
21	APR	1982	0	3.379	2384.3	-57	2333.3
21	APR	1982	100	3.180	2385.0	-57	2334.0
21	APR	1982	200	3.181	2385.8	-57	2334.8

TRISTEN DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
21	APR	1982	300	3.183	2387.3	-57	2336.3
21	APR	1982	400	3.188	2391.0	-57	2340.0
21	APR	1982	500	3.190	2392.5	-57	2341.5
21	APR	1982	600	3.196	2397.0	-57	2346.0
21	APR	1982	700	3.200	2400.0	-57	2349.0
21	APR	1982	800	3.199	2399.3	-57	2348.3
21	APR	1982	900	3.200	2400.0	-57	2349.0
21	APR	1982	1000	3.204	2403.0	-57	2352.0
21	APR	1982	1100	3.234	2425.5	-57	2374.5
21	APR	1982	1200	3.315	2486.3	-58	2434.3
21	APR	1982	1210	3.325	2493.8	-58	2441.8
21	APR	1982	1220	3.353	2514.8	-58	2462.8
21	APR	1982	1230	3.373	2529.8	-58	2477.8
21	APR	1982	1240	3.399	2549.3	-58	2497.3
21	APR	1982	1250	3.418	2563.5	-58	2511.5
21	APR	1982	1255	3.425	2568.8	-58	2516.8
21	APR	1982	1300	3.418	2563.5	-58	2511.5
21	APR	1982	1310	3.406	2554.5	-58	2502.5
21	APR	1982	1320	3.370	2527.5	-58	2475.5
21	APR	1982	1330	3.351	2513.3	-58	2461.3
21	APR	1982	1340	3.333	2499.8	-58	2447.8
21	APR	1982	1350	3.321	2490.8	-58	2438.8
21	APR	1982	1400	3.306	2479.5	-58	2427.5
21	APR	1982	1430	3.287	2465.3	-58	2413.3
21	APR	1982	1500	3.300	2475.0	-58	2423.0
21	APR	1982	1600	3.328	2496.0	-58	2444.0
21	APR	1982	1700	3.355	2516.3	-58	2464.3
21	APR	1982	1805	3.383	2537.3	-58	2485.3
21	APR	1982	1900	3.418	2563.5	-58	2511.5
21	APR	1982	2000	3.470	2602.5	-59	2549.5
21	APR	1982	2100	3.491	2618.3	-59	2565.3
21	APR	1982	2200	3.530	2647.5	-59	2594.5
21	APR	1982	2300	3.572	2679.0	-59	2626.0
22	APR	1982	0	3.570	2677.5	-59	2624.5
22	APR	1982	100	3.570	2677.5	-59	2624.5
22	APR	1982	200	3.574	2680.5	-59	2627.5
22	APR	1982	300	3.588	2691.0	-59	2638.0
22	APR	1982	400	3.599	2699.3	-59	2646.3
22	APR	1982	500	3.590	2692.5	-59	2639.5
22	APR	1982	600	3.573	2679.8	-59	2626.8
22	APR	1982	700	3.549	2661.8	-59	2608.8
22	APR	1982	800	3.536	2652.0	-59	2599.0
22	APR	1982	900	3.530	2647.5	-59	2594.5
22	APR	1982	1000	3.524	2643.0	-59	2590.0
22	APR	1982	1100	3.471	2603.3	-59	2550.3
22	APR	1982	1200	3.471	2603.3	-59	2550.3
22	APR	1982	1300	3.507	2630.3	-59	2577.3
22	APR	1982	1400	3.543	2657.3	-59	2604.3
22	APR	1982	1500	3.578	2683.5	-59	2630.5
22	APR	1982	1600	3.614	2710.5	-59	2657.5
22	APR	1982	1700	3.650	2737.5	-59	2684.5
22	APR	1982	1800	3.651	2738.3	-59	2685.3
22	APR	1982	1900	3.650	2737.5	-59	2684.5
22	APR	1982	2000	3.662	2746.5	-59	2693.5
22	APR	1982	2100	3.669	2751.8	-60	2697.8
22	APR	1982	2200	3.653	2739.8	-59	2685.8
22	APR	1982	2300	3.660	2745.0	-59	2691.0
23	APR	1982	0	3.693	2769.8	-60	2715.8
23	APR	1982	100	3.700	2775.0	-60	2721.0
23	APR	1982	200	3.702	2776.5	-60	2722.5
23	APR	1982	300	3.700	2775.0	-60	2721.0
23	APR	1982	400	3.700	2775.0	-60	2721.0
23	APR	1982	500	3.694	2770.5	-60	2716.5
23	APR	1982	600	3.698	2773.5	-60	2719.5
23	APR	1982	700	3.709	2781.8	-60	2727.8
23	APR	1982	800	3.730	2797.5	-60	2743.5
23	APR	1982	900	3.718	2788.5	-60	2734.5
23	APR	1982	1000	3.713	2784.8	-60	2730.8

TRISTEN DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
23	APR	1982	1100	3.716	2787.0	-60	2733.0

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This report contains satellite navigation positioning, precision depth recorder (PDR) measurements, ice floe azimuths and magnetic declinations collected by the Lamont Group at the FRAM IV drifting ice station. Gravity measurements at FRAM IV, taken by Yngve Kristoffersen of the Norsk Polarinstitutt, are incorporated into this report.

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20.

Satellite navigation positioning and PDR data from the drifting ice station TRISTEN are also included in this report.

Data are presented in the form of tables and figures with a brief description of the instrument and methods used in the obtaining and reducing the data prior to each section.

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